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LOUISIANA CONSERVATION REVIEW

DEPARTMENT OF CONSERVATION, STATE OF LOUISIANA • SPRING, 1941

LOUISIANA STATE CAPITOL
BATON ROUGE

LOUISIANA CONSERVATION REVIEW

V10 #2

PUBLISHED QUARTERLY

SUMMER 1941

(Photo courtesy New Orleans Item)

The first "R" month, September, opens the regular Oyster Season; however, the Department of Conservation recommends the eating of oysters in coastal areas every month in the year.

The Louisiana oyster is unexcelled the world over for flavor and texture. A total of 1,081,458.66 barrels of oysters were severed from oyster beds during 1940, and the value of the oyster crop last year was $1,514,042.12.

Scientific methods and careful supervision by the Division of Oysters and Waterbottoms of the Department of Conservation assures an ever increasing supply of this famous sea food.

Louisiana Oysters	**A well balanced MEAL**
Vitamins	**A. B. D. and G.**
Blood Builder	**Copper and iron**
Bone and Tooth Builder	**Calcium and phosphorus**
Goitre Preventer	**Iodine**
Quick Pep and Energy	**Proteins and muscle sugars**

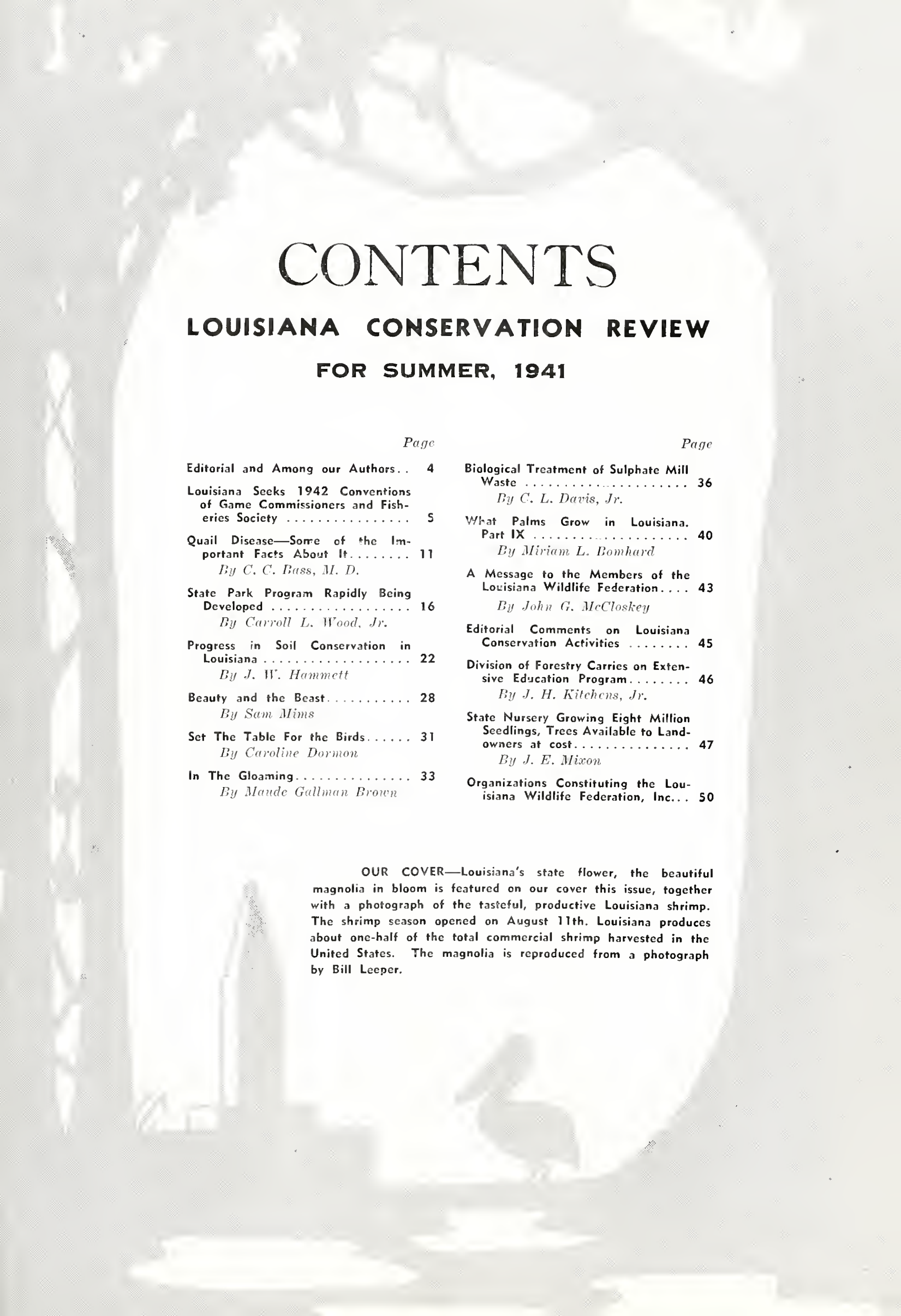
EAT MORE OF THEM

●

DEPARTMENT OF CONSERVATION

DIVISION OF OYSTERS AND WATERBOTTOMS

Louisiana's Natural Resources Serve the World



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OUR COVER—Louisiana's state flower, the beautiful magnolia in bloom is featured on our cover this issue, together with a photograph of the tasteful, productive Louisiana shrimp. The shrimp season opened on August 11th. Louisiana produces about one-half of the total commercial shrimp harvested in the United States. The magnolia is reproduced from a photograph by Bill Leeper.

Louisiana CONSERVATION REVIEW

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Vol. X **SUMMER, 1941** **No. 2**

AMONG OUR AUTHORS

New contributors in this issue include Dr. C. C. Bass, retired dean of Tulane University's Medical School, who writes on quail disease, and J. W. Hammett, Acting Chief, Regional Division of Information of the Soil Conservation Service.

Among personnel of the Conservation Department contributing articles for this issue are Major James Brown, Director Division of Wildlife and Fisheries; Carroll L. Wood, Jr., Director State Parks Division; John G. McCloskey, Director Education Division; C. L. Davis, Jr., Chemical Engineer, Division of Research; J. H. Kitchens, Jr., Associate Forester; J. E. Mixon, Forest Supt., Division of Forestry.

Other authors who have been with us on other occasions include Miss Caroline Dormon, highway beautification specialist; Sam Mims, Planning Technician, Department of Public Works; Miriam L. Bomhard, U. S. Forest Service; Maude Gallman Brown (Mrs. Roland Brown), of Monroe.

EDITORIALS

Conservation 1941 Style

The New Orleans Item in a recent editorial reminds Louisianians that promotion of wild life is a function of the State Conservation Commission. They pointed out that many of our citizens may be surprised to learn of this fact because in the past the Conservation Commission has been known mostly as an agency for the collection of licenses for fishing, hunting, shrimping, oil-drilling and the like.

"The picture now changes abruptly," states the Item. "Enforcement Chief Don Simon goes so far as to conduct a school to instruct conservation agents in their duties, with a faculty of lawyers, biologists, conservationists, mechanics and riggers.

"On the heels of this Major James Brown begins turning our neglected Spillway area into big reservoirs of breeding stock for game fish to be used in replenishing the State's depleted waters."

Concluding, the Item states: "The Conservation Commission, in other words, is actually doing something for conservation. Times certainly do change."

Yes times do change. And Conservation in Louisiana is now on a businesslike streamlined basis. A long-range sound conservation program is under way, and real progress has been made, with the result that the Louisiana Conservation Commission is now recognized as one of the best and most efficient throughout the nation.

Women's Hats and Feathers

According to several of our large department stores, feathers will be popular on ladies' hats this fall.

These feathers will be supplied by the New York importers who do a large business in bird feathers.

Of course, practically all of the birds of North America are protected by state and federal laws. This includes all species of herons, egrets, seagulls, pelicans, song and insectivorous birds.

However, when there is a market for a product someone is going to try and supply this market. This applies to bird plums, narcotics or bootleg whiskey.

The most effective way to stop a market for a product is to discourage the demand for that product.

It can therefore be easily seen that if the demand for bird feathers is removed, then the temptation to secure these feathers will also be removed.

Here then is a job and a challenge to the conservationists of Louisiana and the entire nation, particularly our feminine conservationists. They can do something about this because when there is no demand for hats with bird feathers there will soon be no hats with bird feathers on the market to be sold.

Louisiana Seeks 1942 Conventions of Game Commissioners and Fisheries Society

Louisiana will be well represented at the annual conventions of the American Fisheries Society and the International Association of Game, Fish and Conservation Commissioners to be held in St. Louis, Missouri, during the week beginning August 25th.

Armed with invitations from Governor Sam Jones, city officials of New Orleans and civic organizations, the delegation will endeavor to obtain the 1942 conventions of these two organizations for New Orleans.

Major James Brown, Director of the Division of Wildlife and Fisheries of the Department of Conservation, is president of the American Fisheries Society and will preside during the two days' business session of this organization.

Others from the Department of Conservation scheduled to attend the sessions include W. H. Hodges, Jr., Commissioner; Fred J. McCormac, Chairman of the Conservation Board; Dr. J. N. Gowanloch, Biologist; Don L. Simon, Chief Enforcement Officer; John Campbell, in charge of the Pittman-Robertson quail project; John G. McCloskey, Director of the Division of Education, and Wm. H. Chisholm, Director of the Division of Research.

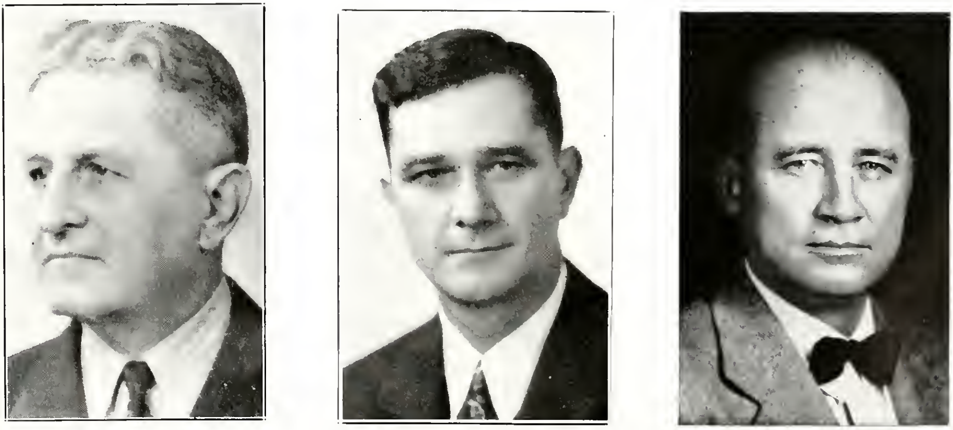
■ Major James Brown, Director, Division of Wildlife and Fisheries of the Department of Conservation, is President of the American Fisheries Society and will preside at the St. Louis convention of that organization.

Leading conservation officials from all parts of the nation are expected to attend the convention. The American Fisheries Society will hold its business sessions Monday and Tuesday, August 25 and 26, and on Wednesday, the entire day will be devoted to a discussion of problems between state and federal officials.

The International Association of Game, Fish and Conservation Commissioners will open its convention on Thursday and continue through Friday.

Both organizations meet the same week in the same city, and the Louisiana delegation will make a strong effort to bring the 1942 conventions of these organizations to New Orleans.

Major Brown, who will preside at the convention of the American Fisheries Society, also served as president of the International Association of Game, Fish and Conservation Commissioners in 1935.



■ W. H. Hodges, Jr., Commissioner, Fred J. McCormac, Chairman of the Board of Conservation, and Don L. Simon, Chief Enforcement Officer, will be in the Louisiana delegation attending the conventions of the American Fisheries Society and the International Association of Game, Fish and Conservation Commissioners to be held in St. Louis, Missouri.

Broad Aspects of Louisiana's Wild Life Restoration Program

by
Major James Brown

The primary purpose of the Wildlife and Fisheries Division is to administer in accordance with sound conservation principles the use of these living natural resources of the State. Sportsmen must play an indispensable and powerful part in accomplishing wildlife and fisheries conservation. It is only with the aid and organized support of the sportsmen of Louisiana that the Department of Conservation can accomplish its objectives. The activities of the sportsmen's leagues throughout the parishes of Louisiana play a part whose necessity and importance cannot be overemphasized.

It is also, however, the duty of the Department of Conservation to extend by scientific research our knowledge of the factors that influence the welfare of wildlife and fisheries resources, since only on the basis of carefully acquired, properly weighed evidence can any efficient and orderly program of game restoration or game management be accomplished.

The whole aspect of game and fisheries administrative policies has undergone a profound change in the past two decades. No longer does any intelligent game administrator believe that by raising fish in hatcheries and indiscriminately dumping them into streams, or by acquiring quail and releasing them indiscriminately in any other variety of areas, he is accomplishing the primary job of improving wildlife conditions. Therefore, there arises the need for an administrative program so closely geared to a research program that as the results of research become known their benefits may be turned without undue delay to practical public benefit.

Louisiana has in many respects resources that match or even far exceed those of many states of the Union. Too long, however, have these resources been neglected, maladministered or wasted. The myth that Louisiana is a generation or so ahead of other states in conservation can easily be exploded by any intelligent sportsman who examines the facts and makes a few comparisons with the state game programs elsewhere. It is a matter of fact that Louisiana still possesses game and fish, not because of intelligent protection or management, but because the natural richness of these resources was so great that even the prodigal disregard for their future safety failed to destroy them.

■ **Burned marsh excessively eaten by blue and snow geese. An example of the need of marsh management.**

Louisiana has certain outstanding characteristics that make it preeminent in game importance. Situated at the southern end of the Mississippi flyway, it affords winter haven for vast quantities of waterfowl, both geese and ducks. The State and Federal Government's maintain in Louisiana systems of refuges whereon these birds remain throughout the winter. Evidence is accumulating that Louisiana is a most important winter ground for the woodcock. Birds banded in central Louisiana have been taken in far away nesting grounds in Nova Scotia. Quail occur from the northern borders of the State to the waters of the Gulf.

Louisiana is especially rich in fishing opportunities. Due to the changes in water level, ponds, borrow pits, and "old lakes" receive an excess of water laden with necessary basic materials that set in action the growth of plants and animals that form the "food chains" supporting fish life. Much of Louisiana is a natural fish hatchery. Fish trapped by falling water levels in small ponds or levee backwaters perish by the hundreds of thousands every year. A fish rescue program, as later described, serves to save for the sportsmen of the State this rich game fish supply.

The divisional operations represent planned projects which inter-relate intricately with each other yet all focus upon the one objective of conserving and improving Louisiana conditions for fish, quail, turkey, muskrat, shrimp and other fisheries and wildlife resources.

It is particularly of interest that among the activities here described are cooperative research programs conducted under the Pittman-Robertson Act whereby the State of Louisiana receives from the Federal Government from the excise tax on firearms and sporting ammunition, three dollars for each dollar that the State contributes. These Pittman-Robertson funds, available last year for the first time in Louisiana, will be productive of useful results of interest to everyone in the State. Under previous administrations these Federal funds were refused to the State because of the failure of the State to comply with certain essential and reasonable requirements. This fiscal year alone the State of Louisiana has been allotted a total of $36,502.37 in federal funds for its Pittman-Robertson activities.

The Pittman-Robertson programs therefore constitute a most important expansion of the work of the Wildlife and Fisheries Division, additional to the orderly carrying out of its former broad responsibilities.

QUAIL PROGRAM

The bob-white provides sport to more hunters than any other single bird in the United States. Bob whites have diminished in number due to increased hunting pressures caused by cheaper and better guns and ammunition and increased accessibility of hunting areas and due also to decrease in proper cover because of "clean" farming and changes in land use. It is clear that under such conditions a bad hatch or bad weather affecting the young bob-white chicks or an epidemic of disease will hit the bob-white population more heavily than ever before. The Division negotiated for the purchase of adult quail and their distribution to sportsmen's groups for planting on chosen areas open to the public for hunting. This new seed stock will, it is hoped, bring new blood and greater vigor into local quail populations.

Quail restoration is a matter of deep interest to thousands of Louisiana sportsmen since certainly no other single North American bird affords so much sport to such a great number of people. The Wildlife and Fisheries Division has this year conducted a program of quail planting through the distribution of quail derived from State-operated quail hatcheries as well as quail acquired by purchase. Quail were distributed to representatives of various sportsmen's league groups and each quail shipment was accompanied by *Lespedeza serecia.* These birds were released at such a time that they could establish themselves and nest this year. Such an arrangement will permit the birds to establish themselves and serve as new seed stock for the localities where they were set free. All lands upon which these quail were planted will be open to the public for shooting this season.

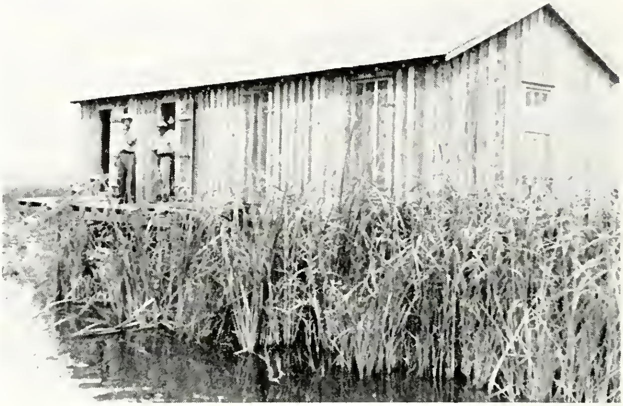
It was planned to purchase ten thousand quail but due to circumstances beyond control only 3,080 birds could be secured. These were supplemented by 2,758 quail from the State quail hatcheries making a total of 5,838 quail released in the State. Although this constituted a disappointment for many interested sportsmen, the program of distribution clearly demonstrated the deep interest shown in this work and the necessary machinery set up for handling such distributions can well serve as soon as quail again become available.

The quail restoration program includes as its most important element a long term, broadly based research project. Staffed with a personnel of four specially trained men, this investigation divides the State into four regions for the purposes of quail research. The results of quail studies in other states cannot be haphazardly applied to Louisiana conditions. It is therefore essential that Louisiana studies of quail habits, foods,

■ **The pictures above show a fish rescue crew in action. Top, left, seine pulled in with catch of fish; right, fish are taken from seine in scoop net and placed in buckets where they are transferred to air conditioned containers in fish rescue trucks and are taken to the lakes where they are released; photo below shows fish being released in Lake St. John in Concordia Parish.**

cover plants and quail range carrying capacity be specifically determined not only for Louisiana but for the various different regions of the State. Cooperation with sportsmen's leagues. service clubs, parish, State and Federal authorities increases the effectiveness of this work. Project areas ranging from six hundred to six thousand acres in size are being set up in agreement with landowners where five-year studies will be carried out. Within each such project area there will be plots three to fifteen acres in area to serve as quail refuges during hunting season. Some of the problems that these project area studies cover may be listed as follows:

1. Fire control over the entire project site.
2. Encouraging the growth of wild plants which produce food for quail.
3. Planting of food bearing shrubs and vines where such plants are lacking.
4. Minimize grazing when possible.
5. Encourage the growth of vegetation along ditch banks, gullies, and fence lanes. Avoid the practice of "clean farming."
6. Planting of food lanes in open areas where agriculture is not engaged.
7. Measures on predatory control to be set up.
8. Planting of quail on the area to replenish the seed stock.
9. Border strips along fallowed field will be planted in food producing crops where protection from grazing by livestock can be provided.
10. Protection of breading sites in cultivated fields and hay meadows.



■ **New type of four-room trapper's camp.**

The Division of Wildlife and Fisheries is also cooperating with the important researches of Dr. Charles C. Bass whose discovery of the organism causing the disastrous quail disease has paved the way for an intelligent understanding of this quail plague. Quail disease, a condition hitherto confused with many other pathological states of the quail is undoubtedly a factor of grave importance in southern quail management. The program of work is directed toward a thorough knowledge and all possible control of this serious quail enemy.

FISH RESCUE PROGRAM

Changing water levels in Louisiana serve to replenish lakes, bayous and other water areas with substances necessary for the growth of plants and of the animals upon which fish feed. Such changes, however, when the water levels decline, may leave thousands upon thousands of valuable game fish trapped and destined to die in borrow pits and levee backwaters. A program of fish rescue work not only saves these fish from destruction but supplements to a most significant degree any hatchery stocking of permanent game fish waters.

The Division of Wildlife and Fisheries has embarked upon and is conducting a program of fish rescue work that far exceeds in planning, in equipment and in effectiveness any fish rescue work previously attempted in Louisiana. Two trucks especially equipped for the transport of fish are provided with an automatic system whereby air is constantly drawn through especially constructed fish containers thus supplying adequate oxygen. Temperatures are maintained by means of special devices that prevent mechanical injury to the fish. The result is that twice as many fish as usual can be carried safely in such tanks. Seining crews working in borrow pits and other trapped waters capture and cull trapped fishes. The desirable species are transported to appropriate waters in good condition where they are released. Numbers thus saved are high. An example of the character of this rescue work may be cited. A total of 16,766 fish were rescued in Tensas Parish and placed in Lake Bruen. The great majority were white crappie, known in northern Louisiana as white perch and in southern Louisiana as sac-a-lait. Ap-

■ **Disastrous pond formation due to undertrapping of muskrats. Such damage may last for years.**

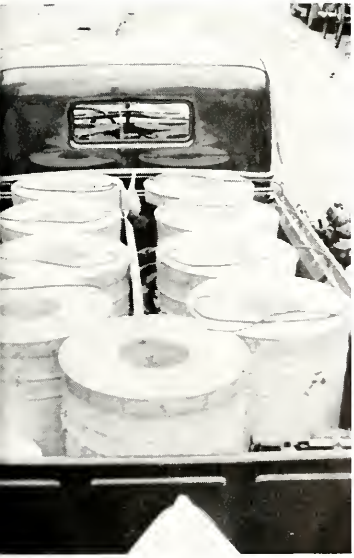
■ **This area is so overpopulated by muskrats that food plants have been eaten out. Wave and tide action may render this once productive territory permanently barren.**

■ "Pre-war" field in Tensas Parish showing open park-like country in bottomland turkey range.

proximately 3,000 were large-mouthed black bass, generally known as green trout. Many of the green trout taken and planted have run from four to five pounds each.

Although this program is in operation only relatively briefly, 73,652 game fish were transplanted from Natchitoches, 25,668 into Lake Providence, 17,696 into Lake St. John, 16,766 into Lake Bruen, and 7,829 into Lake Concordia, making a total of 141,611 fish. It must be remembered that these fish are not hatchery fry but are naturally grown wild fish, a great number of them of such size, three to five pounds, that they could already serve as quarry for the sportsman.

The fish rescue work also involves the removal and destruction of various predators as well as the removal and use of coarse fish.



■ Fish rescue truck. Note central space for icing and small oxygenating tubes.

Special studies have also been carried out in gar control. Various methods for the reduction in numbers of these objectionable species have been experimentally investigated. A program for wide application of the results of these studies throughout the State is being prepared.

WATER HYACINTH CONTROL IN FISHING WATERS

The water hyacinth, commonly but incorrectly called water lily in Louisiana is the cause of much trouble to sports fishermen. Not only do the water hyacinths interfere with casting, but they may damage the sport fishing value of a pond by fully blocking out light thus destroying the normal chain of aquatic plants and various aquatic animal organisms upon which fish feed.

■ Tensas River, through excellent bottomland turkey country.

The U. S. Engineers office is conducting extensive and effective water hyacinth control chiefly on navigable waters since these plants multiply so rapidly in our climate that they may impede or completely prevent navigation of streams. The Department of Conservation has under construction two especially designed water hyacinth control units which will presently be in operation. Consisting essentially of a motor-driven endless conveyor, the apparatus is set up on pontoons. Easily transported, since it is on wheels, the water hyacinth eradicator can be set up at the edge of a pond and the water hyacinths brought to the conveyor by means of movable booms. Inexpensive in operation, this conveyor will clear between 12 and 15 hundred square yards of hyacinth infested water surface in an hour.

It is of interest to note that the water hyacinth, *Eichhornia crassipes*, is a native of Japan, from which country it was introduced into various parts of South America. During the World Cotton Exposition held in New Orleans in 1884, the Japanese Government maintained a Japanese building at this World's Fair. The Japanese staff imported from Venezuela considerable numbers of water hyacinth which were given away as souvenirs. Eagerly sought, these plants were carried for and wide, multiplying to become a disastrous pest throughout the south.

The Department of Conservation water hyacinth eradicators will perform valuable service in working directly where the sportsmen most need them, and in addition, they will serve to supplement the governmental program of water hyacinth control.

MUSKRAT PROJECT

Trapping in Louisiana has an estimated financial value of seven and one-half million dollars annually, when there are taken into account both the value of the furs and payrolls maintained in the harvesting of the fur crop. The vast preponderance of this fur take consists of muskrat pelts. As many as ten million muskrat skins have been produced in Louisiana in a single year. Louisiana has also contributed over seventy-five per cent of the total national muskrat production in a single year. The numbers of muskrats and the prices that the skins command both fluctuate widely.

Muskrats in Louisiana live under conditions that for productivity of the fur crop are clearly unmatched anywhere else in the entire continent. Nowhere else, indeed, have such numbers of valuable fur bearing animals been produced in such relatively small areas.

Louisiana muskrats, like Louisiana beavers, follow a way of life differing far from that of their northern relatives. Considerations of climate, the availability of winter food, continuously open water, all favor this astonishing productivity and at the same time impose upon the scientist and the economist the problem of establishing through research the basic principles of a practical program for Louisiana muskrat management. Muskrats are a crop that must be harvested to the correct degree. Otherwise the over-population of rats will destroy the marsh so completely that it will take years to become again inhabitable by the fur bearers.

Muskrat management becomes a particularly important problem on the various State waterfowl refuges since unless the rats are properly kept in check serious damage to, and even complete destruction of, the value of the area as a waterfowl refuge will follow. The trapping of refuge murskrats not only provides useful revenue for the State and a livelihood for the great number of trappers involved, but also actually is the most important factor in making possible the efficient use of the land concerned for its primary purpose as a waterfowl sanctuary.

The Pittman-Robertson program of muskrat research is now well under way. Included in the problems under investigation are muskrat food habits, muskrat diseases, factors controlling density of muskrat population. numbers of muskrats per unit of area to give best continuous muskrat crop, burning over of marsh to increase food plont production, transplanting of muskrat food plants, control of undesirable marsh plants that would otherwise block out useful muskrat food. The answers will serve in establishing correct waterfowl refuge management and will also provide a broad sound basis for improving the fur industry in Louisiana, an industry that means bread and butter to thousands of citizens of the State.

The relationship of various predators, hawks, snakes, and others, to the muskrat crop is also being studied. Included is a special investigation of the food habits of the alligator and the part that the alligator plays in muskrat territory. Only on the basis of evidence secured by field studies and by examination of stomach contents of alligators can a clear understanding of alligator relationship to muskrat marsh management be determined.

EXPERIMENTAL PLANTING OF DUCK FOOD

The Division of Wildlife and Fisheries has carried out experimental planting of refuge areas with important duck food plants. Some of this work covering areas where storm action has denuded duck ponds of the natural duck food supply. Planting of some nine different most important duck food species was completed in one refuge area while experimental transplanting of local duck food stock was accomplished on severol other refuge tracts. This work is particularly important in providing information as to the usefulness of planting as an instrument in efficient waterfowl refuge management. This work has also greatest practical importance in relation to muskrat production since the food plants of both waterfowl and muskrats are similar.

SHRIMP PROGRAM

The Department of Conservation has been cooperating for the past ten years with a Federal-State program directed to the investigation of commercial shrimp.

Louisiana produces about one-half of the total commercial shrimp harvested in the United States. At the time that these investigations were begun, commercial shrimp, *Penaeus setiferus*, was the least known of all important sea food animals, although it ranked high both in value and volume among the fisheries of the nation. As a result of these investigations not only do we now know as much about sea shrimp as we do about any other major sea food species but the fishery has been extended in new and profitable directions. Expansion of this shrimp investigations program included the establishment this year by the Department of Conservation of a shrimp research laboratory at Morgan City, in charge of a properly trained, adequately equipped biologist. Morgan City is the center of one of the most important recent developments of the shrimp industry, the headless shrimp trade. Through the activities of this new research office, the Department of Conservation is now able to follow accurately the development of this new and highly remunerative phase of the shrimp industry. Information thus obtained will make possible the efficient development of this new type of shrimp fishery in accord with sound conservation principles.

WILD TURKEY PROJECT

Wild turkeys in Louisiana have been protected by continuous close season since 1924. This noble game bird probably suffers more than any other game animal at the hands of the poacher.

A Pittman-Robertson project to study the wild turkey under Louisiana conditions was begun July 1, 1941. The field biologist detailed to the turkey program has carried out preliminary work in Madison and Tensas Parishes where there is much ideal wild turkey territory. The Singer area, famous for its wealth of wildlife, provided a superb field for initiations of the turkey research Virgin forests, mostly giant red, gun and oak, compose some 60 thousand acres of the area. Old pre-war fields, now covered with trees 30 to 60 feet tall open and park like, make up some 20 thousand acres. Parts of both these types of territory have been cut over. The program of work is designed to provide a sound knowledge of what constitutes good wild turkey conditions and good wild turkey management in Louisiana.

The application of such management methods plus enforcement of the law should contribute greatly to bringing back this magnificent game bird. Louisiana is fortunate in having scattered throughout widely separated areas of the State a fine stock of native wild turkeys.

The activities of the Wildlife and Fisheries Division thus represent the responsible stewardship of these natural resources whose value to the people of Louisiana is truly incalculable. Certain of these resources form the broad substructure of industries that yield the daily bread of thousands of our citizens. Their value in wholesome recreational terms is extreme. Their further value in material purchases for such recreation, in the purchase of personal services as guides, in the rental of boats, in transportation—all these dependent values flow outward beneficially from the basic natural resources that give them existence. Conservation demands proper management and proper harvesting of these wildlife and fisheries crops for the greatest benefit for the greatest number both today and tomorrow.

THE BOBWHITE QUAIL

"But despite all the modifications that have been wrought in its appearance during the passage of time, there is one characteristic of the bird that has never wholly changed. The mating call of the Bob-white that rings across the wheatfields of Virginia, is not far different from those that echo among the Maya ruins of Yucatan, or stir the sunlit savanas of far-off Venezuela."

Quail Disease--Some of the Important Facts About It

by
C. C. Bass, M. D.

Papers which I have published in scientific journals on my researches on ulcerative enteritis of quail are too technical to be very pleasant reading for most sportsmen. Besides that, they are not likely to come to the attention of, and be available to, any large proportion of all the people who are interested in promotion of the propagation of quail. Therefore, I am glad to comply with the request of the editor to prepare a paper on the subject of quail disease, to be published in the Louisiana Conservation Review. I shall refrain from the use of technical terminology as far as possible.

Ulcerative enteritis of quail is the technical name for what is more commonly known as "quail disease." The technical name indicates the pathological characteristics of the disease. Enteritis is inflammation of the intestine and ulcerative enteritis means inflammation of the intestine, accompanied by ulceration. Throughout this discussion I shall use the common name, quail disease, instead of the technical name The reader is reminded, however, that here we are talking about this one, and only this one, specific disease of quail and not about diseases of quail in general, of which there are many different kinds.

Quail disease is by far the most important disease of captive quail. We now know that it has been responsible for the failure of many an undertaking to propagate quail in captivity. Many game breeders have had their entire stock decimated or practically wiped out by an outbreak of this disease. Some of the state game farms, where efforts are made to propagate quail for releasing and restocking purposes, have lost literally thousands of valuable birds from it in a single season.

Many private game breeders have sustained great losses and have been discouraged and disheartened by the devastating effect of an outbreak of this disease. Often they have attributed their troubles to one cause or another and have not recognized the real cause. This has been true heretofore especially because some of the most important facts about the disease have not been known, or if known, they have not been well understood.

As a result of a great deal of painstaking research during the past two or three years, we now know enough of the more important features of quail disease to serve as a basis for its prevention and control in quail kept in confinement.

Editor's Note—About five years ago, Dr. C. C. Bass, retired dean of Tulane university's medical school, set out to study nutritional problems with quail as his guinea pigs. Every morning Dr. Bass found more and more dead bodies of the birds in his laboratory cages. In short order the pens were 80 per cent empty, vacated by quail disease.

Until that time little was known about the disease, what caused it and how it was spread. Dr. Bass rolled up his sleeves and went to work. Recently ears of conservation experts throughout the nation have pricked up with the news from Louisiana that indicates laboratory research may spell the end of the dread "quail disease".

Dr. Bass has found the cause and a vaccine for "quail disease" and in the accompanying article tells the story of his experiments.

In fact the information we now possess may have some indirect, if not direct, influence upon the distribution and possible harmful influence of the disease in wild quail. At least it will suggest that greater caution should be exercised in releasing either propagated or wild trapped birds. If among such released birds there are carriers of quail disease, they are likely to be a source of spreading it to other birds with which they come in contact and thereby actually reduce the total quail population, instead of increasing it as is intended. It will be important in the future to make sure that birds to be released are free from this disease.

PATHOLOGICAL FINDINGS

During my studis I have autopsied literally hundreds of birds with the disease acquired through natural spread in the laboratory (before we knew how to control it) and other hundreds that were deliberately inoculated for experimental purposes of one kind or another.

The appearance of lesions of the disease at autopsy is so characteristic and so definite that almost anyone who is interested should have no difficulty in recognizing it, after he has seen a few typical specimens and has learned how to look for it.

Anyone who wishes to look for the disease in his birds is advised to kill and autopsy sick birds or birds from pens in which others are supposed to have died from quail disease. He should not depend upon autopsying birds that have been dead for some time, in which postmortem changes have already occurred. In special instances only, it may be desirable to autopsy birds that have been dead for as long as a few hours. Quail disease can usually be recognized in such specimens, but not so well as in fresh specimens.

To examine a bird for quail disease open the abdomen with a scissors or knife so as to expose the abdominal viscera, especially the small intestine below the gizzard. If quail disease is present one can see at once, in the lower half of the intestine a few to many small greyish ulcers. (Fig. 1) They can be seen through the walls of the intestine. They vary in size from pin-point to as large as a pea or even larger. Often two or more run together making a still larger lesion than a single ulcer. Similar lesions are also usually present in the ceca (the two "blind guts" leading off from the lower end of the small intestine).

Often there are adhesions between, loops of the intestine, due to the inflammation associated with the ulceration. Sometimes if these are pulled apart, a hole or perforation into the intestine is produced.

Now if one slits open a part of the intestine containing these ulcers and examines it from the inside, he finds that the lesion which he could see through the intestinal wall consists of a thickened, raised, tough mass which is firmly attached to, and imbedded in the intestinal mucous membrane. If it is forcibly removed a part of the membrane comes off with the necrotic mass.

Usually a variable amount of inflammation of the tissues around the ulcer may be seen. In the more acute cases this inflammation may be quite intense; in chronic cases of longer duration there may be very little inflammation noticeable to the unaided eye. Under the microscope inflammatory reaction of the tissues around the ulcer can always be seen. In a small proportion of birds with the disease (about 10 per cent in my experience) secondary lesions may be found in the liver. They are small greyish necrotic areas at the surface and also deeper in the organ. They vary in size from that of the point of a pin up to that of the head of a large pin or even larger. These lesions are secondary and are the result of the specific germs of the disease in the intestine being carried by the portal blood stream to the liver where they lodge, multiply and cause very much the same kind of damage to the tissues of the liver as they cause in the intestine.

SYMPTOMS

There are no symptoms whereby quail disease can be diagnosed with any degree of certainty. Fortunately it is not necessary to depend upon symptoms to ascertain whether birds are dying from this disease. If it is suspected, one can kill and autopsy a few birds and know whether quail disease is present or not.

Birds that have quail disease usually appear sick and droopy. Often the first thing noticed is one or more dead birds in a pen that has been infected. Some may appear sick and still others in the same pen may appear perfectly well. More and more of them die off until perhaps none remain.

If quail with this disease are kept in pens with wire bottoms it will be noted that the droppings in the dropping pans underneath are mostly large white splotches (Fig. 2), instead of the usual formed droppings of normal healthy birds. This results from the intestinal lesions being large enough, and perhaps also from the associated inflammation and adhesions being sufficient, to prevent the passage of the food residue on through the intestinal canal. In effect the intestine is obstructed and therefore the discharges contain only the excretion from the kidneys, mostly urea.

These characteristic droppings are very suggestive of quail disease but they certainly are not absolutely diagnostic. Any other disease or condition that interferes with the passage of the food residue through the digestive canal tends to cause the same kind of droppings.

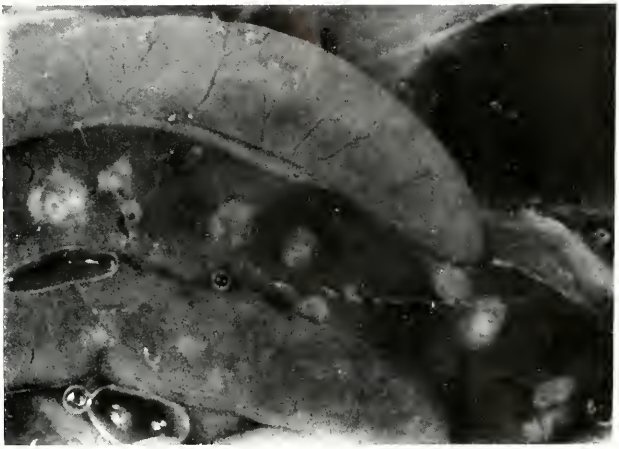
A bird that has enough intestinal obstruction to interfere with the normal digestion and assimilation of food gradually becomes emaciated. Many such birds actually starve to death. Although they eat some and are very hungry they do not get any benefit from the little food they can take. It is pitiful to see such chronically diseased birds emaciated to "nothing but skin and bones" (Fig. 3). Normally the thick muscular breast makes quail one of the fastest flying game birds we have. Of course, this extreme emaciation occurs only in birds that have the disease for long periods of time, often several weeks.

TRANSMISSION

Experimentally quail disease can be transmitted by feeding artificially through a tube introduced into the crop, droppings from diseased birds, or better still, ground up diseased intestine. This latter material is highly infectious and when given in massive doses produces a very acute, fulminating form of the disease, in which

(Photo courtesy New Orleans States)

■ **Officials of the Conservation Department are inspecting the laboratory quail of Dr. Bass. From left to right, W. H. Hodges, Jr., Commissioner; Fred J. McCormac, Chairman of the Conservation Board, and Major James Brown, Director of the wildlife and fisheries division. (Inset) is a photo of Dr. C. C. Bass, retired dean of Tulane University's medical school.**



■ Fig. 1. Intestine through the walls of which greyish masses, the ulcers, can be seen giving the typical appearance in quail disease.

the bird may die with acute intestinal inflammation, even before there has been time for the characteristic ulcers to form. In one experiment I had a bird to die within 36 hours from the time it was given a large amount of such infectious material. In several instances birds died within three or four days after they were given very large doses of highly infectious material.

In other experiments I have given different size doses, from very large down to very small, of infectious material to a number of susceptible birds. In general those receiving the largest doses developed the disease and died first. Those receiving the smaller doses came down later or in some instances did not develop the disease at all.

In fact a few of such artificially inoculated birds and also those that are infected in the normal way through the droppings of diseased birds, may not show symptoms for weeks afterward. I have kept such infected and diseased birds under observation in my laboratory for several months before they died from the disease or were killed for study.

In some instances no indication of the disease is recognized. So far as one would know from appearances such infected and diseased birds are not sick at all during this time. Such birds with the chronic form of the disease are a potential source of infection to other birds with which they may be penned.

Whenever quail disease is spread among large numbers of birds in confinement most of the infected ones (at least 80 per cent) will die within the following two months but some of them live on for a much longer time. The thing for us to recognize is the fact that following any general spread of the disease in the stock of birds at a game farm, or birds kept in captivity for any purpose, there are likely to be some carries among them for several months afterward. Unless this fact is recognized and understood, it will be difficult for one to plan effective preventive and control measures.

We have seen how the infection may be transmitted experimentally by deliberately feeding to susceptible birds the droppings of birds that have the disease. The same thing happens when susceptible birds swallow similar material with feed that has been contaminated with such droppings. This may occur when there is one or more diseaesd birds in the pen with other birds or it may occur from careless and unclean handling of feed in such a way as to contaminate it.

There is another very important mode of transmission within pens from diseased to well birds. When quail are kept in considerable numbers, closely confined in small pens, they develop a capricious appetite and tend to pick at abnormal things. It is not unusual to see such closely confined birds pick and actually consume the droppings of other birds to which they have access. This habit of captive quail, known technically as coprophagy, is much more prevalent than anyone would think, unless his attention was especially called to it. It has been observed and noted, however, by many gamebird breeders.

There is still another possible source of transmission. Under my laboratory conditions birds that have the chronic form of the disease layed eggs, in some instances over considerable periods of time, before they finally died. A few young chicks hatched from such eggs developed the disease, although they were protected from any known source of infection. Although I have not been able to find the specific germ in any egg I have found it in quite young chicks.

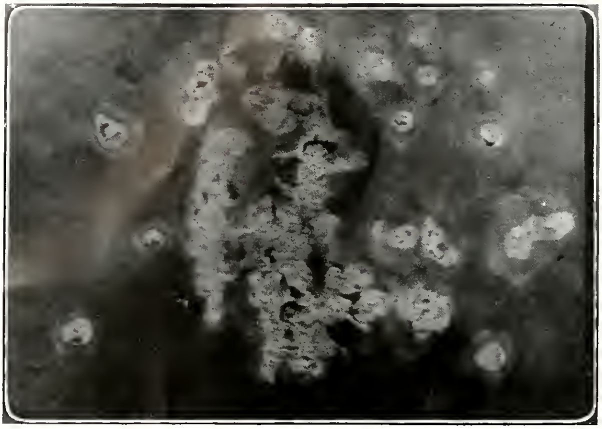
Therefore we can say that at present there is evidence, but not proof, that the infectious agent may be transmitted through eggs layed by diseased birds. This may occur in some such way as white diarrhoe of chickens is transmitted through eggs layed by hens carrying the specific germ of that disease. I should not like to see too much importance attached to this suggestion, however, until there is more proof than we have at present, that transmission in this way does occur.

INCUBATION PERIOD

From the above information it is clear that no definite incubation period can be laid down. It may be from only a few days to several weeks before a given bird dies of the disease. However, if well birds and carries are confined together in pens in which the droppings may lodge and the feed may become contaminated, it is usually six to eight days before any of the new birds die. Of course, when a bird dies of quail disease it has been sick for some time before that, although possibly this was not recognized. In fact if we kill and autopsy several apparently well birds from pens in which there are carries and transmission has been taking place, some of them will be found to have the characteristic lesions.

MORTALITY

For a long time I could not find any evidence that birds ever recover from quail disease. However, out of a large experience with the disease I now know of



■ **Fig. 2.** Typical appearance of droppings in pan under wire bottom pen containing birds with quail disease.

a very few instances in which recovery occurred. This has been confirmed by finding unmistakable scars from the healed lesions in a few rare instances. For practical purposes however it must be considered that recovery occurs so rarely as to be unimportant.

SPECIFIC CAUSE

Quail disease is caused by a specific germ just as most other infectious diseases of man, animals, birds and other living creatures are caused by germs that are specific for each particular disease. Any description of this organism would be too technical to impose upon the readers of this article. (Suffice it to say, for those who are interested, that it is a Gram-negative, anaerobic, non-spore bearing bacillus, which is extremely difficult to isolate and work with in the laboratory. I have published papers elsewhere about this organism, giving information as to the technique I have used for its identification, isolation and cultivation.)

IMMUNIZATION

I have already pointed out the fact that some birds fail to become infected when inoculated with the same material that did infect others. In a few experiments I have had birds that resisted more than one such inoculation with highly infectious material. Just what the nature of this immunity is cannot be stated at this time. However, it has been found in such a small proportion of birds as to be of little practical importance.

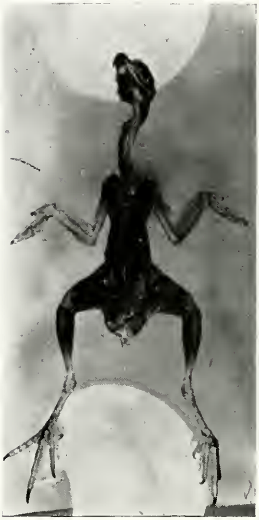
A vaccine may be made by growing the specific bacillus in the laboratory and preparing it somewhat like the vaccine against typhoid fever in man is prepared. Experimentally this vaccine, when, injected into the breast muscle of susceptible quail immunizes them against large and otherwise infectious doses of living cultures.

Although this is of scientific interest it is not necessary for the control of quail disease. It is not likely to be employed in practical quail breeding. Whenever the facilities and methods of handling quail are so faulty as to permit transmission of quail disease, it is unlikely that vaccination, even if it did control that disease, would lead to success of the enterprise. Moreover, it is unlikely that a reliable source of vaccine for practical use, will be available any time soon.

PREVENTION

It is extremely important to avoid bringing the disease into rearing projects. Since a good many of the game bird farms, state and private, have had quail disease among their birds at one time or another, one should exercise great care in obtaining birds or eggs to be introduced onto his premises. Once introduced it will surely be hard to get rid of. A sufficient period of quarantine and isolation of any new birds would be likely to show whether there are quail disease carries among them.

We do not know to what exent, if any, quail disease occurs in wild birds. There is great need for the necessary investigation and studies to be made to answer this question. It would be a big undertaking but would be well worthwhile. It is also very important to ascertain the influence, if any, upon the native wild bird population, of releasing quail disease carriers among them.



■ **Fig. 3.** Extreme emaciation of quail due to starvation from quail disease of long duration.

CONTROL

Experimentally I have deliberately placed birds that have quail disease in small pens with other well birds and have found that transmission seldom occurs when the mesh of the wire in the bottom of the pen is not smaller than one-half inch (2x2 wire). The disease spreads readily in pens made of 3x3 wire or of any smaller mesh. Of course, there must not be any cross bars under the wire or any ledges or other places where droppings can lodge and become accessible to the birds in the pen. The feeding and watering facilities must be on the outside of the pen and not exposed to contamination with the droppings of diseased birds. Under these circumstances transmission of quail disease rarely occurs, the infected birds finally die out and the disease disappears.

ACKNOWLEDGMENT

In closing this article I wish to state that the research work which I have done on this disease has been aided by substantial donations from Mr. A. B. Freeman and Mr. C. S. Williams of New Orleans, and by a grant from the Special Research Fund of the Tulane University of Louisiana. Without this aid, and the laboratory facilities that have been available to me at the Tulane School of Medicine, it would not have been possible for me to carry out many of the important experiments.

Conservation of Wildlife

By GERALD SONGY, St. Joseph's Commercial Institute

(Editor's Note—The Ascension Parish Sportsmen League recently sponsored a contest among school students for best essays on the subject of conservation, and the following essay was selected as the best one)

Conservation, for most people, means simply an act of preserving from decay, loss, injury or waste, the wonderful resources that nature has put on this earth. But if we examine further into this important subject, we find that its meaning has a greater significance which must be realized by every sportsman. We should not only understand the meaning of conservation, but should realize how vital it is that we carry out its program.

Years ago, within the borders of this country, once dwelled animals of every class and distinction, so numerous that it was known to early explorers as "The Kingdom of Animals." But this kingdom did not remain. Into this wonderful continent came the white man to destroy these beautiful animals which nature had placed on this earth. Buffalo herds became practically extinct and wild game were killed wastefully. So-called sportsmen took advantage of the abundance of birds and killed them by the hundreds. The destruction of fish gradually came about by the use of seines and the pollution of our waters.

Total destruction of wildlife is being prevented through the great effort of the Department of Conservation. Game laws are passed and enforced as far as possible. Active sportsmen leagues are being formed throughout the United States, trying to teach hunters and fishermen to be sportsmanly. Other organizations and institutions raise different forms of wild animals and set them out into the wilderness. Streams are being opened and cleansed of any pollution that may have been deposited in them. Fish hatcheries turn out millions of fish yearly. Seining is prevented, night hunting stopped and the killing of scarce animals limited or in some cases entirely prohibited.

Step by step we can see the restoration of our wonderful "Kingdom of Animals." But our work is not yet complete. We must not stop until we have accomplished our end, namely the betterment of our wonderful resources, and must feel a personal obligation in the program to SAVE AMERICA. We must all work together to guard our storehouse of natural wealth for future generations and the economic security of our nation.

Suggested Program for Fishing, Hunting and Other Conservation Organizations

Fishermen and hunters as a group are not technically trained in the field of managing wildlife resources. Many of their activities need technical advice and direction to be of most benefit to fish and game species.

Some local meetings are arranged, more for entertainment or for personal enjoyment of members.

There is a place for such activities, but with so much available energy in local communities it seems that more thought and effort should be given to directing willing groups into channels where wildlife and real conservation would directly benefit. Each member of an organization should participate actively in some constructive conservation work.

1. Educational Activities

(a) The Louisiana Conservation Department and the Fish and Wildlife Service, Washington, D. C., are prepared to send out certain published bulletins on wildlife subjects.

These are valuable to club officers or entertainment committees for keeping members informed. Much of the State and Federal information can be used profitably in directing wildlife subjects.

(b) Motion Pictures. Motion pictures on wildlife subjects are available for club meetings. Applications for lists of films may be obtained from the Louisiana Conservation Department, Division of Education, New Orleans.

Films are also available from the Fish and Wildlife Service, Washington, D. C.

2. Improving Natural Habitat for Wildlife.

Probably the greatest opportunity for conservation organizations lies in improving habitat to increase the food and cover available for wildlife. Work of this kind needs careful planning and the advice of informed specialists from either State or Federal Conservation Departments. Where improvement of fishing conditions is under consideration the same agencies should be consulted.

Conservation groups can best help in—

A. Planting and protecting native trees and shrubs for improving wildlife habitat.

B. Preventing forest and grass fires which destroy so many young trees along with the food and cover for game.

C. Planting suitable duck foods and preventing unnecessary draining of marshes.

D. Furnishing labor in developing publicly owned refuges.

E. Encouraging and educating landowners and farmers that in order to have game it is necessary to leave food and cover along the ditch banks and fence rows.

F. Fostering a conservation education program in Louisiana schools. Personal instruction to boys and girls on proper handling of fire-arms and fishing-tackle.

G. Removing, from fresh water streams with contributed labor, water hyacinths and alligator grass.

H. Fostering projects for destroying gars and bowfins (Tchupicques).

I. Assisting the Conservation Department with labor in planting and rescuing fish.

J. Assisting in preventing or remedying local pollution problems. This can often be done by contacting operators of plants or factories causing pollution.

3. Game Law Enforcement

Every organization whose aims and purposes are for conservation should promote respect for game and fish regulations.

A. Report violations to the nearest game agent.

B. Seek nonpolitical appointment of qualified game agents and technicians.

4. Learn Conservation Problems

By reading statements in newspapers, bulletins and sporting magazines. Listening to talks by conservation officials.

In this way it is possible for all conservation clubs to become familiar with the yearly program of Federal and State Conservation Departments. Certain meetings of the club should be devoted to—

A. Analyzing yearly reports of Federal and State departments affecting local wildlife conditions.

B. Studying all activities and programs that may vitally affect local game population.

C. Recommending to both Federal and State Conservation Departments, changes in regulations, and laws for improving local situations, keeping in mind the broader State and National conservation programs.

The strength of the present Louisiana Wildlife Federation depends upon active participation by every individual directly interested in conservation.

State Park Program Rapidly Being Developed

by
Carroll L. Wood, Jr.

Generally speaking, state parks are those large naturalistic areas chosen for their outstanding character and usually contain facilities for bathing, fishing, picnicking, and other outdoor activities, all of which are concentrated in one intensively developed section known as the day-use area. Adjacent thereto, particularly on the larger areas, accommodations are provided for overnight guests who are desirous of remaining on the area for one night or longer. These accommodations are usually in the form of low-rent cabins and are close to the lodge which would serve the necessary meals. Adjacent thereto are the week-end cabins which are just a little more spacious and provide for a visit of two to three days. When feasible, vacation cabins are supplied which are rather remote and provide a retreat for the persons who are attempting to really enjoy the area to its utmost and remain for a period of one to two weeks.

The Division of State Parks is keenly interested in preserving or bringing back some pioneer traits of our early ancestors. For this reason, organized camps capable of accommodating groups up to one hundred at one time, will provide this mission and allow various organizations, social agencies, Boy Scouts, 4-H Clubs and other such groups to really camp out and return to some of the woodland, and to be free in carrying on their own programs under their own leadership and direction.

■ Woodland scene in picnic area at Chicot State Park.

Other features of importance are the nature buildings and craft shops which are located near the day-use area and accessible to the other facilities. These buildings should be placed on or near nature trails, which are so designed that they will provide loops for the beginner and loops for the more advanced or scientific students. There is no reason why these trails and other facilities should not be welcomed by the various organizations, groups, schools and universities, and in fact become outdoor class rooms for all of the schools in the vicinity of the park and for some of the universities, so that it will not be necessary that all of the knowledge of these great outdoors and of our early natural surroundings will be learned from books alone. In many instances where these trails and nature buildings have been given a fair trial, it has been proved that they attract even as great a crowd as do the beaches, picnic grounds and other facilities. In fairness, it may be pointed out that these trails receive year round use while the other facilities are more or less seasonal. This has its advantage in that it serves as an additional program along with its conservation aspects and at the same time, increases the winter attendance of the parks and does not limit them to seasonal operation but provides a year round use.

■ Bathers in the cooling waters at Bogue Falaya River, Wayside Park, Covington.

GREAT PARK SYSTEM FOR STATE IS POSSIBLE

There is no question in the mind of the writer that Louisiana has the potentialities for one of the greatest and best state park systems in the South. It may be that my opinions are a little prejudiced or biased, but to me, our vast number of streams, our innumerable waterways, our bayous, marshlands, native flora, cypress brakes and rolling lands, history, and general topography of the entire state are equally, or more important and worthy of preservation as the mountains, deserts, glaciers, falls and battlefields which have been so conscientiously preserved by some of our other states.

In many localities where commercialism advanced more rapidly and where vast industrial centers were set up entailing a great concentration of population, most of the natural resources in such localities were unscrupulously destroyed and those that were not were soon bought in by private individuals and immediately posted, excluding tnose who eventually would not have the opportunity to visit or enjoy such natural sights if it were not for the state's participation in preserving them for a state park system.

We in Louisiana are more fortunate in that we still have many areas which are worthy of preserving. Many of you who read this now remember the favorite oicnic spot, swimming hole or the favorite

■ Fort Pike showing interior moat and Old Glory. This State Monument is under supervision of the State Parks Division and is located on U. S. Highway 90, 30 miles north of New Orleans.

■ Entrance to Tchefuncte State Park on U. S. Route No. 190 near Mandeville.

fishing grounds, native flora, or camping site which used to be so popular and well frequented and is now either destroyed or fenced and posted and excludes all but a few from enjoying its use.

We must therefore make a concentrated effort to carry out a program of acquisition and preservation of our large state parks at as early a date as possible, even though development in the way of facilities cannot be foreseen for many years to come. These can be added to as funds are available but if the sites are destroyed or removed from public ownership, no funds, regardless of the amount, will be in a position to return what was once one of our most outstanding assets.

Thus you can all see by now that the ultimate objective in this program is to attain and preserve those worthy areas

■ **Picnic grounds and small shelter, Bogue Falaya Wayside Park, Covington.**

■ **Picnic shelter under construction by enrollees of Civilian Conservation Corps at Tchefuncte State Park,** in the state and to make them available to the great number of what is commonly termed the "general public," and we are not by any manner of means concerned deeply with the development of these areas for those who are in a position to pack their cars and travel many miles to commercial establishments or resorts.

RAPID PROGRESS MADE ON COMPLETION OF SOME PARKS

It can be seen that there is no person, organization, school, city, town or parish that has not been included in our plans and will not benefit from this park system when completed.

In order to fulfill the recreational needs the State Park department has now set aside several areas which are rapidly reaching a stage of completion. These existing areas will by no means complete nor constitute the long range park system of the state, but do represent the nucleus of an outstanding recreational system. Few people realize that the average automobile owner's weekly wage averages between $20 and $30 per week, and most of his travel is within seventy-five and a hundred miles of his home. The need for a recreation center near the vast metropolitan center of New Orleans is being met by the establishment of Tchefuncte State Park located on the shore of Lake Pontchartrain near Mandeville, La. The State Park Division is making every effort to have a portion of this park ready for the summer season of 1942. The dredging work preparatory to providing an adequate beach is nearing completion. An artesian well has recently been completed to assure an adequate water supply for the ultimate park development. Work is being rushed on the sewage disposal, water and electric lines as well as the parking areas, picnic areas and picnic shelters.

■ **Portion at Chicot Lake (under construction) showing dam in back ground, Chicot State Park.**

If work proceeds according to schedule this park will be capable of accommodating five thousand persons in the bathing and picnicking areas next summer The bathhouse and concession building will be ready for use on completion of the utilities mentioned above. In order to eliminate dust along the entrance road the departmnt is working out plans with the Highway Commission to blacktop this road. While not essential for proper operation it is hoped that a small nature building and nature trails will be available for next year's use.

Beyond all question of doubt this park will fulfill an urgent need and will be available for next year's use. The State Park Division is now negotiating for a small dredge with which to complete a lagoon preparatory to installing overnight

■ **Upper Left: Lodge at Chemin-A-Haut State Park now fully equipped and open for use; Upper Right: One of five fully equipped cabins for overnight or vacation guests, Chemin-A-Haut State Park; Lower Left: Acadian House Museum, guide and lecture service except Mondays, Longfellow-Evangeline State Park; Lower Right: Recently opened lodge providing meals and concessions to park patrons, Longfellow-Evangeline State Park.**

and vacation cabins for public use. The other plans for this park are for the establishment of an organized camp for the youth of this section, whereby organizations such as the Council of Social Agencies, 4-H Clubs, Boy Scouts, Hi Y and other similar organizations will be provided healthful camping.

This area is approximately fifty miles distant from New Orleans over the Pontchartrain bridge, and approximately fifty-eight miles by way of the bridges at Chef Menteur and the Rigolets. If the latter route is traveled the visitor will be afforded the opportunity of visiting Fort Macomb and Fort Pike, state monuments maintained as historical ruins by the State Park Division and extremely interesting as a study in early fortifications Both of these forts were constructed as links in the early defense of the city of New Orleans.

Bogue Falaya Wayside Park, located at Covington, Louisiana, provides swimming, picnicking and like activities and is now enjoying a very heavy use not only from the town of Covington but from the city of New Orleans.

■ **Bathhouse and beach (under construction) Tchefuncte State Park.**

LONGFELLOW-EVANGELINE PARK IS POPULAR SPOT

Longfellow-Evangeline State Park, located near St. Martinville on the banks of Bayou Teche, is dedicated to the purpose of preserving the early Acadian history of this portion of the state. The old Acadian house is now a museum of great interest to the tourists and local people alike. This museum contains many articles representative of the old Acadian history and registrations show that approximately nine thousand persons visit the museum each month. Concession rights have recently been leased on the lodge on this park and meals, soft drinks, and similar supplies may now be obtained on the park area. The picnic grounds have been improved by additional picnic tables and ovens, and a new vehicular bridge assures easy access. It is planned to carry out additional development on the area during the ensuing year.

Chemin-A-Haut State Park, located in Morehouse Parish ten miles north of Bastrop, Louisiana, contains five vacation cabins and a lodge all of which have been recently completely furnished and are now available for use and occupancy. The picnic grounds are being enlarged and facilities for small games such as horse shoes and badminton and the like are now available. Boating and picnicking are available on Bayou Bartholomew, which borders this park. Arrangements for rental of these cabins may be made through the Superintendent of Chemin-A-Haut State Park, Bastrop, Louisiana.

TCHEFUNCTE
STATE PARK & GAME PRESERVE
SHOOTING OF FIRE ARMS PROHIBITED
LEAVE TREES SHRUBS AND
WILDFLOWERS FOR OTHERS TO ENJOY
LOUISIANA CONSERVATION DEPT.

■ **Historic and scenic allee of live oaks leading from ruins of old sugar mill to beach, Tchefuncte State Park. Right: Photo of the educational signs which tell motorists that they are approaching the park entrance.**

Chicot State Park, located in Evangeline Parish, represents the largest acreage under the jurisdiction of this department, totaling approximately six thousand acres of which well in excess of two thousand acres will be under water. Due to the rate of influx of soldiers at the four military reservations, Camp Polk, Camp Claiborne, Camp Beauregard and Camp Livingston, Chicot State Park will play a very definite and important role in the recreation not only for the civilians but for the military camps in this locality. The State Park Department is doing everything within its power to make this area useable at an early date and is now making application to the Public Works Administration so that their program may be accelerated by grants made possible under House Bill 4545, which allocates $150,000,000 for projects of this nature. If this division is successful in obtaining assistance from this source, Chicot State Park will be available for use at a very early date.

The division also has several other minor tracts which are now under development but on which no work is being actively engaged due to limited funds and the necessity of completing the above-mentioned areas, particularly Chicot and Tchefuncte State parks where the Defense Program has created an urgent need for these facilities.

This department sincerely hopes that as many citizens and organizations as possible will visit the various parks from time to time to ascertain for themselves the work being done and the value of the state-wide development.

HINT NEW RESTRICTIONS ON SNIPE AND WOODCOCK SHOOTING

A release of the U. S. Fish and Wildlife Service, dated August 7th, hints at added Federal restrictions for the protection of woodcock and Wilson's snipe, following investigations which reveal, according to the Service, "that the numbers of both species are unsatisfactory".

Service investigators are said to have found the present Wilson's snipe population "startlingly small". "It seems obvious," said Dr. Gabrielson, Director of the Service, "that additional steps must be taken to protect the Wilson's snipe." Woodcock studies also were said to have revealed that last year's shortened woodcock season, put in effect following storm disasters of January and April, 1940, "has not been enough to bring about the hoped-for recovery". Of the states and provinces in which the 1941 woodcock investigations have been conducted (Pennsylvania, Wisconsin, Maine, New Brunswick, Nova Scotia, Prince Edward Island, Ontario and Quebec), only Ontario and Quebec were reported as having populations approximating those of two years ago, although Michigan conditions were called fair.

Upper: Concession Building near beach in Tchefuncte State Park.

Lower: New vehicular bridge over coulee to picnic area and Bayou Teche in Longefellow-Evangeline Park.

Progress in Soil Conservation in Louisiana

by

J. W. Hammett

(Photographs by Soil Conservation Service)

The year 1812, when the first steamboat came down the Mississippi River, marked the beginning of an agricultural expansion of the newborn State of Louisiana. The cotton gin had already been invented and now cotton, the main cash crop, could be sent by boat to New Orleans down the Red, the Ouachita, the Atchafalaya, Bayou Dorcheat, Bayou Dugdemona, Bayou D'Arbonne, and others. The job of clearing and settling and tying together with ships and roads and rails and works and names, a place where people could live in freedom from the rest of the world and from each other began in earnest. These people knew what democracy was. They also knew that they were the smartest, toughest, luckiest, leanest, and all-round knowingest people on God's green earth. Their way of living was the handsomest way of living human beings had ever hit upon. If anyone had told them anyone else had a harder hold upon the earth than they had or that anyone else believed in himself more than they believed in themselves, they would have laughed in your face—and then gone on with their work.

A deed to a piece of Louisiana farmland in those days meant that on every acre there was at least 12 inches and some times as much as 3 feet of the most fertile topsoil in the world—soil that had once grown the finest timber to be found anywhere, soil which had supported a variety of wild game in abundance, soil that grew the finest cotton, corn, tobacco, rice, sugar cane and pastures to be found in the United States, soil which under slave labor made its gentlemen owners the envy of a nation. Food, clothing, and shelter, the three necessities of life were produced in abundance.

With so much land available, the early settlers, their descendants, and in later years the "new comers" ruthlessly laid waste to the land and its resources. There were a few who cried out against these practices, but their warnings went unheeded. In 1886 D. W. Harris and B. M. Hulse published "The History of Claiborne Parish." "The early settler," Harris and Hulse wrote, "thinks that lands are cheap, and so goes ahead, year after year, without counting the cost, even to himself in the end, leaving out of consideration altogether the heritage of his children, the needs of the generation which is to come after him.

"The rule generally followed is as fast as one field is exhausted it is turned out, the forest cut away and another enclosed to go through the same process of treatment. When he decides upon the precise plot of eminent domain which he will next lay waste, his first step is to seek out all the timber growing upon it which can be converted into rails. Such trees are felled and converted into rails.

Editor's Note—"Soil and Water are Basic Principles of Real Conservation", that was the subject of an address delivered in Louisiana recently by Dr. Ira N. Gabrielson, Director of the U. S. Fish and Wildlife Service. In the course of that address Dr. Gabrielson cautioned Louisiana conservationists to "never forget that you cannot carry on a wildlife program without guarding the resources of soil and water" . . .

We wanted our conservationists to know the progress of soil conservation in Louisiana, so we secured an article for this issue on this subject. This article written by J. W. Hammett, Acting Chief, Regional Division of Information of the Soil Conservation Service, tells facts and figures which should be of interest to all conservationists in Louisiana.

"Next he cuts off the undergrowth, which is made into brush heaps, to be burned when dry; then cuts down the saplings and smaller trees, whose bodies are cut into convenient lengths for hauling home. He next chops around all trees left standing, thus killing the trees. He hauls out everything available for fuel. He cuts all logs left on the ground into convenient lengths which, with the help of his neighbors, he makes into heaps on the ground.

"His clearing is now done, and is ready for the grand burning as soon as the brush and logs are sufficiently dry.

"This field is then kept in constant cultivation in crops which take all from the soil and return very little, or nothing. to it until, by a constantly diminishing yield, it is found no longer profitable for cultivation. Then it too is laid aside and another inroad made upon the forest."

LOUISIANA HAS MADE GREAT PROGRESS IN A CENTURY

In a little more than a century, Louisiana has changed from a wilderness to become a part of the greatest civilized nation on earth. But its eroded hillsides, silt filled streams and depleted game are a sad commentary on man's stewardship of the land. There are no more fertile lands to homestead. Our frontier today is the land beneath our feet and someone holds a deed to every foot of that land. That deed entitles the holder to the same inalienable rights of freedom of speech, religious worship, and pursuit of happiness as it did in 1812 but it does not guarantee the owner the same amount of topsoil—the working capital of the farmer.

About 13,000,000 acres of Louisiana land—or nearly one-half the area of the State—need treatment of one kind or another to protect them from erosion damage. More than 6,000,000 acres have lost more than 25 percent of their topsoil. Raw gapping gullies between patches of stunted cotton and corn, infertile sub-soil washed down on good bottom land, weeds growing on land turned out to "pasture" because there was no topsoil left to grow row crops, fire scarred pines that were too stunted ever to be valuable saw-logs—all have played their part in forcing thousands from crumbling homes to become unwilling migrants. No one will deny that technology, domestic and foreign markets, farm tenancy, transportation, and numerous economic and social factors have had their effects on the plight of American agriculture. Neither will he any longer deny that it is necessary to do sometihng about declining crop yields.

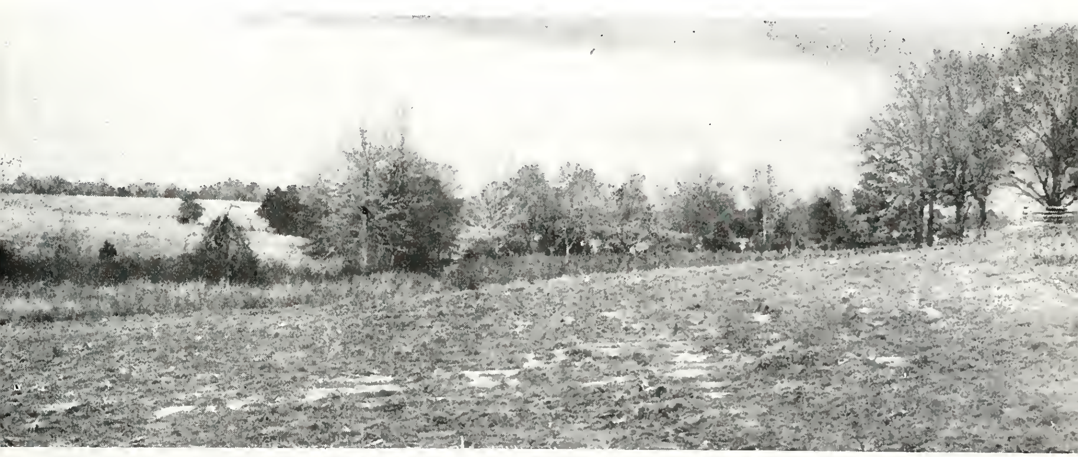
Louisiana's sons and daughters have taken the lead in mending and strengthening those resources which their forefathers unthoughtedly had started on the road to devastation, even while they built a great civilization. As the Nation's mind and muscles quicken to the task of national defense, Louisiana's farmers are in the front line. They are not producing shells and guns and tanks and ships, but they are putting their "factories' in order to produce food and fiber. They are putting the land in shape so that it will be more than ever worth defending. Their children will not ask, "You have given me the deed to the farm, but where is the soil?"

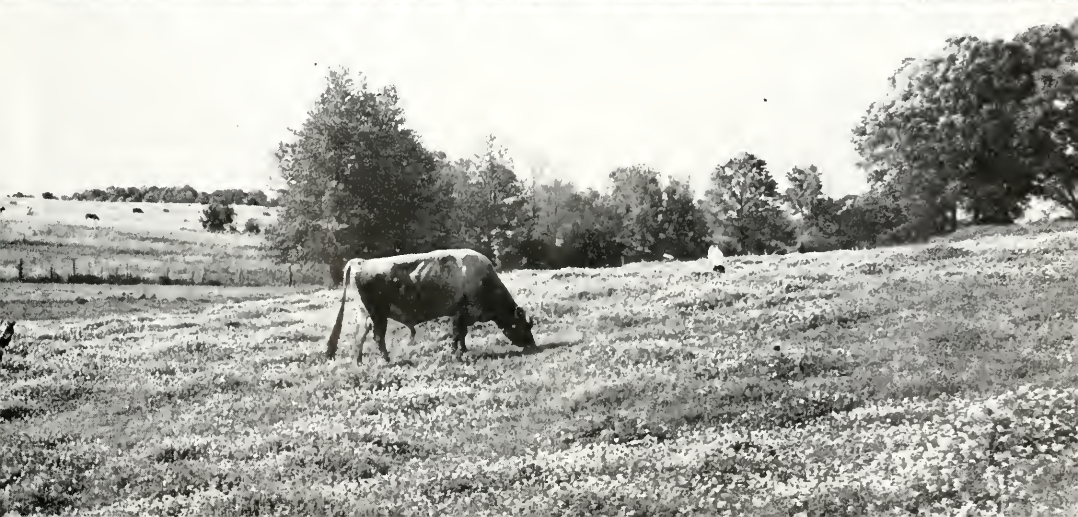
MILESTONES IN SOIL CONSERVATION PROGRESS REVIEWED

Brief milestones in Louisiana soil conservation history reveal the following: 1914, creation of the agricultural Extension Service which began general work in agricultural education. This work included some soil conservation demonstrations, chiefly terrace construction and contour cultivation. 1928, Federal Government appropriated funds to set up in the United States nine soil erosion experiment stations. 1933, National Soil Erosion Service set up under Department of Interior to demonstrate in cooperation with farmers the practical application of soil and moisture conservation on a watershed basis. Two projects were located in Louisiana under this Service, one on the Brushy Cooly Creek watershed near Minden and another on the Cypress Creek watershed at Ruston. 1935, Soil Erosion Service transferred to the United States Department of Agriculture and renamed the Soil Conservation Service. Four more demonstration projects were set up in Louisiana at Farmerville, Coushatta, Clinton, and Mansfield. Twelve CCC Camps also were assigned to Louisiana to do soil conservation work on farms. 1938 Louisiana passes soil conservation districts law. (Forty-two states now have similar laws.) April 1941, Louisiana became second state in Nation to have virtually all of its lands subject to serious erosion included within a soil conservation district as the thirteenth district was organized by farmers bringing the total acreage in districts in the state to about 13,000,000.

The purpose of this soil conservation district law of 1938, broadly speaking, is to provide a mechanism to help farmers cooperate in dealing with soil and water conservation problems. It forms a legal basis for activity by all interested groups. The farmer, local State and Federal agencies, work as a unit in promoting better use of the land. The philosophy behind this districts law is that the people of the district are capable of governing themselves. This principle is uppermost. Once a district is organized by petition and the ballot, the responsibility for managing its affairs is placed squarely upon the local folk. The ballot, instead of the fire and sword, is used to select leaders. Farm people develop their own program. Once again the people of the communities come to-

■ **Top: Unprofitable, eroding cultivated fields can be used more wisely in pasture if soil is suitable. Below: The same field 18 months later with the soil pegged securely in place with grasses and clovers that easily support a cow to the acre—thus contributing its part to the food for defense program.**





gether as in the days of log rollings and quilting bees to thresh out their problems at the grass-root level. The administrative agency of the soil conservation district law is the Board of Supervisors of Louisiana State University, which in turn has delegated this responsibility to the state soil conservation committee composed of the Dean of the College of Agriculture at L. S. U., the director of the State Extension Service, and the Director of the State Agricultural Experiment Station.

REAL SOIL CONSERVATION JOB DEMANDS COOPERATION

No better proof of what Louisiana farmers think of these soil conservation districts can be found than the fact that in organizing the thirteen districts they cast 12,810 votes for and only 229 votes against these districts. Almost all of the so-called hill land of Louisiana now lies in districts which cover all of the following parishes: Bossier, Caddo, De Soto, Sabine, Vernon, Beauregard, Rapides, Webster, Claiborne, Union, Morehouse, Lincoln, Bienville, Red River, Natchitoches, Jackson, Winn, Grant, La Salle, Catahoula, Washington, West Feliciana, East Feliciana, St. Helena, and parts of the following parishes: West Carroll, East Carroll, Richland, Madison, Franklin, Ouachita, Caldwell, Tensas, Evangeline, Allen, St. Landry, St. Martin, East Baton Rouge and Tangipahoa.

■ When the soil is gone men must go. The above has become an increasingly common scene. It does not need to continue so.

Just as soil conservation demands the coordination of several practices and techniques so does the actual carrying out of the job demand the cooperation of many people. To meet the responsibility placed on them by the state law and the people in the district, the board of five supervisors (who must also be farmers within the district and serve without pay) in each of the thirteen districts have asked assistance from local, State and Federal agencies in a position to help them.

The Soil Conservation Service in Louisiana is now concentrating most of its efforts upon work with these districts. Technicians have been assigned to the twelve districts now operating to provide the farmers with conservation surveys to assist with developing individual farm

■ Sloping land that is to be cultivated must be properly terraced and tilled on the contour. By pooling teams and labor and using light equipment, a conservation program can be applied by any willing farmer.

Where gullies have swallowed land even to the very door of the home.

plans and in supervising the establishment of those plans. Small equipment such as long winged terracing plows and fresnos have been loaned to the districts. A small amount of young seedling trees has been furnished also.

The Extension Division conducts the necessary educational phases of the program through the county agents. Teachers of Vocational Agriculture assist with the educational work and to some extent with the action program in establishing individual farm plans. The State Forester of the Conservation Department assists the supervisors with reforestation work in their districts. The wildlife specialist of the Conservation Department assists the supervisors with wildlife food and cover problems.

ASSISTANCE RECEIVED FROM OTHER FEDERAL AGENCIES

The boards of district supervisors have requested and have received assistance from other Federal agencies such as the Civilian Conservation Corps and the Works Projects Administration in providing some labor in establishing the programs on individual farms. The Farm Security Administration, the Agricultural Adjustment Administration, the Farm Credit Administration, and Rural Electrification Administration, are coordinating their work with the district program. The Agricultural Adjustment Administration for example pays cooperating farmers 75 cents per 100 feet for constructing terraces to approved specifications.

Cooperation with the soil conservation district is purely voluntary. If a farmer wants the program on his farm, his application for assistance is approved by the board of supervisors Technicians of the Department of Agriculture assigned to assist the district help the farmer work up a five-year erosion control and land use plan based on an accurate survey of soil and the farmer's needs. The farmer then signs an agreement with the board of supervisors of the district which sets out what he agrees to do and what the district will do. Briefly the agreement provides the farmer with a blue print of his farm, assistance in laying out needed terrace systems, strip crop lines, contours for pasture development, designs for farm ponds, etc., provides him with any necessary technical guidance in establishing the practice; his maps show him what type of crops each acre of land is suited to produce. The farmer does most of the work in the actual establishment of the conservation program, even when CCC or WPA labor is available.

As of June 30, 1941, complete coordinated soil and water conservation programs had been developed for 5,597 district farms covering 828,356 acres. In addition conservation farm plans had been completed on 2,512 farms covering 455,839 acres in six Soil Conservation Service demonstration projects and 11 CCC Camps. The average size of all these farms planned to date (8,109) is 160 acres.

The following figures indicate some of the changes that have been made in land use on the average 160 acre farm:

	Before Treatment	After Treatment
Pasture (Acres)	31.	52.5
Permanent hay	.5	2.5
Orchard and Vineyard	.2	.5
Woodland	66.6	50.0
Wildlife areas	.2	.5
Idle land	4.3	0.0
Cultivated land	53.9	51.
Miscellaneous (farmsted, etc.) ..	3.3	3.
Total Acres......	160.0	160.0

To the individual farmer who has applied this conservation plan, this revision of land use means that: He has no idle land on his farm, every acre is producing

In the uplands, where floods form, Nature teaches a lesson in flood control. A dead leaf, a blade of grass, or a root tangle can stop a raindrop from running, and floods are made up of raindrops infinitely multiplied. Wise land use is simply an adoption of Nature's flood control methods to the conditions on the farm.

that crop which it is best suited to produce; he has more acres of pasture land and has good grass and perhaps clovers instead of weeds, a vegetative cover that will hold the soil from now on if properly managed; he has increased his land in permanent hay from one half acre to two and one-half acres; he has increased his orchard and vineyard; he has reduced his cultivated land only slightly but he is now cultivating his best acres instead of some of his poorer acres. His poorest lands have gone to timber or to wildlife plantings and some of his former woodland has been put into cultivation or developed into pasture. It means that on about 85 percent of his cultivated land, he is installing a terrace system, cultivating on the contour, adding organic matter to his soil by the use of cover crops, practicing an approved crop rotation, he is protecting his woodland from harmful grazing and learning to harvest his timber on a sustained yield basis rather than clear cutting it.

SOIL AND WATER CONSERVATION PROGRAM BRINGS RESULTS

The following examples illustrate the value of a soil and water conservation program to the farmer. In the fall of 1938, Edward DeLee near Clinton, Louisiana, established a complete soil and water conservation system on his farm. He included cover crops of hairy vetch, common vetch and Austrian winter peas in his crop rotation. In addition he put 350 pounds of basic slag per acre. The following year he harvested an average of 34 bushels of corn per acre on land that formerly produced only 10 to 12 bushels. Soil conservation benefit payments from the Agricultural Adjustment Administration more than paid for the cost of the seed and the basic slag. The downward trend of cotton yields on two farms managed by H. C. Storey of Grand Cane has been reversed since complete conservation systems were installed on these farms in 1936 with the assistance of Soil Conservation Service technicians at Mansfield. The average cotton production on the DeSoto Corporation and Myrtle Chaffin farms for the seven-year period, 1928-1934 was 187 pounds of lint per acre. The seven-year average on the George M. Williamson farm was 173 pounds of lint per acre. The following table shows how cotton production has been increased by the DeSoto Corporation-Chaffin farms since 1936:

Year	Acres	Pounds of Lint	Average Yield
1936	180	25,945	144
1937	172	31,252	187
1938	115	29,250	254
1939	116	39,560	341
1940	117	39,069	334

Thus it is seen that the average cotton production for this farm for the years 1936 through 1940 was 235.8 pounds of lint cotton per acre or 48.8 pounds more than the 1928-1934 cotton production.

On the Williamson farm the cotton production increased as follows:

Year	Acres	Pounds of Lint	Average Yield
1936	86	12,485	145
1937	66	13,160	199
1938	62	11,480	185
1939	67	16,540	247
1940	66	19,940	302

The average production of cotton on the Williamson farm for the five-year period 1936-1940 was 212.1 pounds of lint per acre or an increase of 39.1 pounds over the seven-year average of 173 pounds.

The adoption of conservation plans on all farms in a community also means that the farmer on the lower lying slope is no longer worried about how to control rainwater from the neighboring farm above because they have designed a drainage system to carry it safely to the stream below.

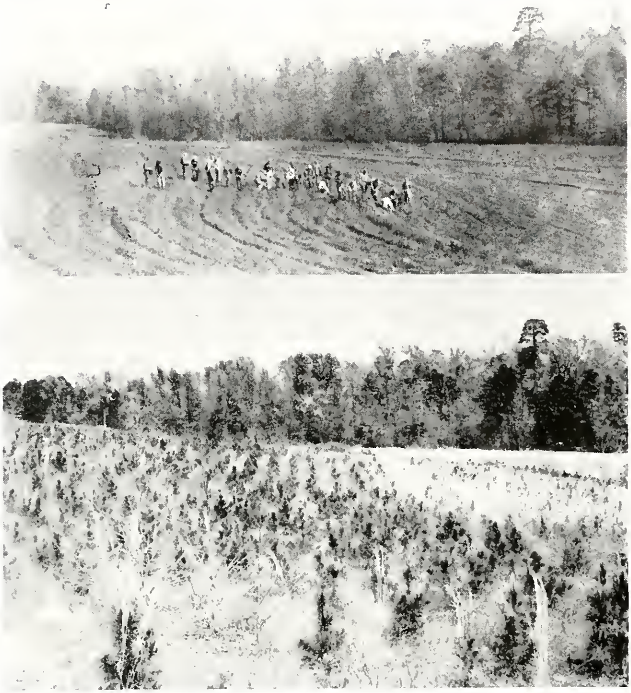
Louisiana people always have been pioneering people and they still are. But they're out of the pioneering stage in soil and water conservation. They have realized that the land they farm today, the woods, the streams and lakes and the wildlife all are held in trust for the generations which will follow. Of course they must make a living from these resources today and they are doing it through the practice of conservation farming. They are learning that the way they use their land today will determine the kind of heritage they will leave for their children.

GOOD WORK FOR WILDLIFE

(New Orleans Item)

The Louisiana Wildlife Federation takes appropriate action when it unanimously commends the wildlife program of the Conservation Department. Separation of this important work from its illogical confusion with the other phases of conservation is an obviously sound step. None but political demagogues can rage against the substitution of honest and impartial enforcement of regulations for the dishonest, greedy, grafting mismanagement that characterized the late dictatorship.

Governor Jones' sponsorship of the Pittman-Robertson legislation, which should bring the State about $35,000 of Federal cash for wildlife restoration is good in itself as well as for the added money; especially in a State which "has been destroying such resources with no effect toward conservation." That is the Federation's judgment and phrasing. Both are right.



■ **Above: CCC boys are helping the farmer by planting young pines on land so eroded that it no longer produces cotton and corn profitably. Below: The same field two years after planting to pines. Erosion has been controlled and a good deposit has been made on a savings account for the sons and daughters of tomorrow.**

■ **Men can revise their use of the land to stop the menace and at the same time gradually return the damaged earth to production.**

BEAUTY AND THE BEAST

by
Sam Mims

(Photos by Fonville Winans)

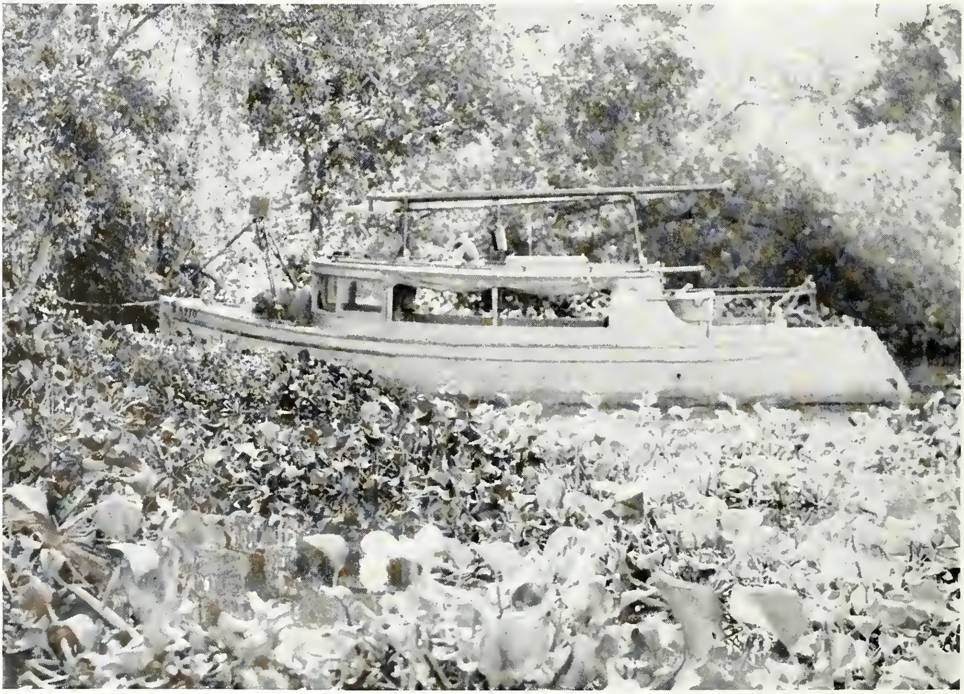
It seems incredible to admit that a beautiful flowers can become a formidable enemy to man in his efforts to transport the products of his labor. It is almost inconceivable that lily pads and their delicate lavendar blossoms can ensnare pleasure boats of amazed vacationers and hold them in bondage.

It is quite natural for boating enthusiasts, particularly if they are intrigued by aquatic flowers and moss-draped trees, to venture far down the lazy bayous of the Gulf South and become so enchanted that they are oblivious of approaching inconveniences, if not impending danger. Water hyacinths don't scratch and bite and maim in the manner of entangling thorns and briars of the deep tropics, but they have certain bewitching proclivities that lure you into their flowery nets. Some gullible visitors have been known to abandon their enmeshed boats and attempt by walking upon the magic carpet of green, only to find that the water hyacinths are as untrustworthy as a mirage.

The height of incredulity was reached when the War Department began building a navy with which to fight water hyacinths in Louisiana, however, there were no battleships designed until considerable research had been done in an attempt to learn the most vulnerable portion of the enemy's anatomy, and to gather important facts concerning the invasion of Louisiana by this native of the tropics.

HYACINTHS FIRST INTRODUCED IN NEW ORLEANS

At the Cotton Exposition, held in New Orleans in 1884, a certain horticulturist, being anxious to excel all others in the display of rare and beautiful flora, imported from South America an aquatic flower that was destined to cause thousands of visitors to vie with each other in their exclamations of admiration. But even the research made by army engineers does not disclose the manner in which the horticulturist disposed of his hyacinths after the close of the exposition, or the method used to propagate this very rare and beautiful plant. It seems that neither horticulturist nor engineer perceived in this aquatic plant re-



■ Vacationers are intrigued by the acquatic flowers and moss-draped trees.

■ Navigation is important in Louisiana with her labyrintb ol bayous, canals, lagoons, and bays.

production qualities that put the guinea pig to shame. Even so, it is a well-established fact that six years after the exposition it had spread all over the Gulf Coast area, from Louisiana westward through Texas and eastward through Florida, and had become a nuisance and a handicap to navigation. In 1897 Congress passed an act appropriating $5,000 for the study of this plant that had carpeted every bayou that touches the coastal region. This was the opening of war on that innocent-looking plant that had charmed thousands of visitors to the exposition in 1884, a war that spread in scope and intensity to such an extent that an annual expenditure of approximately $80,000 is now required to keep the streams of Louisiana open to navigation.

The root of the water hyacinth consists of a small hard center from which extend several slender tap roots, each covered with many long hair-like projections. The plant is very succulent, being 95 percent water, and has a coarse cellular structure. It has huge leaves that are so buoyant they float freely on the surface of the water. Studies conducted by engineers in charge of hyacinth destruction in Louisiana show that the plant propagates mainly through seeds but also by root offshoots. With favorable weather conditions, two crops will mature from seed during a season and a third crop will be of such size and hardiness as to withstand the winter months and be on its way to early maturity next spring. Root offshoots develop rapidly after they break away from the mother plant and are soon producing seeds and recruiting their strength in the apparent determination to obstruct navigation.

STATE HAS 4,000 MILES OF NAVIGABLE STREAMS

Water transportation is important in Louisiana with its four thousand of miles of navigable streams. One can see tug boats pulling long barges loaded with rice and sugar cane and here are shrimp trawlers and oyster boats, pirogues and bateaux, bearing muskrat trappers and commercial fishermen, all trying to plow through the maze of green leaves that float on the surface.

Bayou Lafourche is invaluable to the sugar cane growers in Assumption and Terrebonne Parishes, also to the oyster, crab and shrimp fishermen. Along this stream is found the densest rural population in the world, everyone of them affected, directly or indirectly, by the obstreperous water hyacinth. From these facts one understands why the inhabitants were so reluctant to see this plant, year after year, take possession of their important artery of transportation. But, with only farm tools with which to fight, these farmers, fishermen and trappers were helpless against this aquatic invader, which accounts for their appeal to Congress.

After several years of research and study, the engineers in Louisiana concluded that poison was the best method of destruction. Experiments finally led to the adoption of a certain arsenical solution, which is not only deadly when applied to water plants, but in nowise is calculated to extend the life of man. Even so, for a while the engineers were delighted with results. About two weeks after the plants had been sprayed they died and sank below the surface of the water. No doubt this branch of the department of war was now silently composing phrases suitable for their final report. A means of destroying water hyacinths had been discovered!

But alas! Farmers along the streams where poison had been applied began howling and threatening. Cattle had eaten grass along the shore lines and in some cases had eaten the poisoned hyacinths, and these animals had died immediately.

And so, it was necessary for the engineers to invent some other means of combating this lovely lily that had attracted so much attention at the New Orleans Exposition in 1884.

"BATTLESHIP" LAUNCHED TO FIGHT WATER HYACINTHS

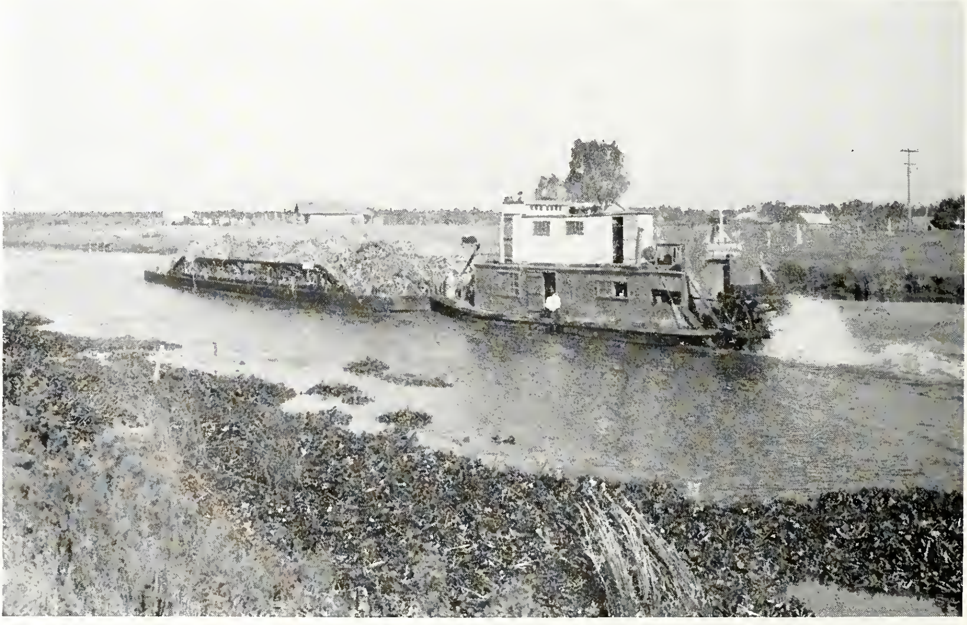
In attempting to force their boats through the hyacinth-infested streams the engineers had observed that the plants coming in contact with the paddle wheels and propellers were bruised and that they immediately wilted and sank below the surface of the water, as in the case of poisoned plants. With this observation as a start, experiments were conducted to see what results could be obtained by doing this *hyacinth bruising* on a large scale.

A great many of the bayous of Louisiana pass through the "sugar bowl" where thousands of acres of sugar cane grow each year and where tons and tons of this product are crushed and the juices made into sugar. Therefore, it was natural for the engineers to think of the crushing rollers they had seen in sugar mills while trying to visualize a mechanical device with which to bruise and destroy water hyacinths.

After many more months of research and experimentation, the first battleship built by the army was launched in Bayou Segnette on the 11th day of July, 1937, where it was properly christened under the name "Kenney," but without benefit of champagne or any of the usual formalities of such occasions. "The

[Turn to page 48]

■ The glistening green leaves make an excellent background for the fragile, orchard-like blossoms. The spikes of these lavendar blooms are from 8 to 12 inches long.



■ The Good Ship Kenney has cleared the channel of Bayou Lafourche of water hyacinths to permit the hauling of sugar cane.

Set the Table for the Birds

by
Caroline Dormon

(Photographs by the Author)

Birds will come where they can find abundant food and shelter. Some persons seem to think that if they have tall trees, they have supplied the birds with homes; but this is not enough. They must have leafy coverts in which to hide from enemies, and among which they can find safety in which to build nests and rear their young. Masses of twiggy shrubs and vines supply this need. Thick evergreens offer shelter from winter winds. Yaupon, is ideal, as it not only keeps out the wind, but the numerous horizontal leaves turn the rain.

But most important of all is the matter of a steady food supply. Feeding trays are fine, but nearly all birds need fresh fruits. To fill this need we have berry-bearing plants, and all are more or less ornamental.

Of course summer is the least difficult season for the birds, but even then, a mulberry, black cherry, or elder, draws a throng of visitors. Elder is a large, clumpy, quick-growing shrub, which bears its panicles of fragrant creamy blooms and wine colored berries from mid-summer until frost. If one has space for them, blackberry and dewberry vines offer welcome food in spring and early summer. Wild grapes are ornamental, and there is always some species in fruit from mid-summer until late autumn.

The beautiful berries of sassafras are eaten so quickly (the latter part of August), we scarcely have time to enjoy their colorful display. The birds take the blue fruits, leaving us only the scarlet calyxes. The same is true of fringe tree (*Chionanthus virginica*). The graceful drooping panicles grow heavy with blue berries, but these, too, are soon devoured. In late summer and fall the pretty little red or black fruits of sloes (tiny wild plums) ripen, and are enjoyed by larger birds.

FALL IS THE SEASON FOR MANY BERRIRES

Fall is the season of many berries, and feathered flocks can feast. All of the viburnums (sometimes called "blackhaws" and " 'possum haws") bear blue-black fruits, some of which are enjoyed by human beings. *Virburnum acerifolium* is a tiny shrub, while *V. scaberrimum* is sometimes six feet in height. *V. nudum* bears, when quite small, berries of soft rose and blue in the same

Few persons seem to know that dogwood bears tight clusters of shining scarlet berries, which cling all winter.

A yaupon bridge offers both food and shelter in winter.

cluster, but it sometimes becomes a tiny tree. *V. rufidulum* and *V. prunifolium* are small rounded trees, and the edible fruits cling all winter—or until eaten by birds.

A favorite on the winter bill of fare is blackgum (*Nyssa sylvatica* and *Nyssa biflora*). In my woods there are a number of large trees, and in early winter the robins pour into them by hundreds, till the sound of their thankful notes is like falling water.

The beautiful fruits of the various hawthorns cling most of the winter, and supply many a meal to hungry songsters. The same may be said of the several species of *Ilex*: holly, yaupon, winterberry, inkberry, etc. The shining scarlet but bitter berries of dogwood, too, are on the late winter menu. I never see the birds eating them, however, until the blackgums have been stripped. The vine, rattan (*Berchemia*), is one of the dependables for supplying food in the hard months of January and February. It climbs to the tops of tall trees, and the swaying masses are often filled with hundreds of chattering birds. Unfortunately, it is unwise to plant this vine on small grounds, as it tends to take the place.

A pretty shrub which seldom fails to bear a full crop is winter huckleberry (*Vaccineum arboreum*). The sprays of tiny fragrant flowers borne in spring are followed by edible black berries. They hold all winter, or till eaten by the birds.

BIRDS WILL EAT ALMOST ANYTHING WHEN HUNGRY

It is surprising what our feathered guests will eat when hard pressed by hunger. Even confirmed insect-eaters will devour dried-up berries when it is too cold for bugs and worms to be found. Once when everything was encased in ice, and I was making my rounds to see about the birds, I was astonished to come on a sumac bush literally covered with bluebirds. They were eagerly eating the hard sour berries! During the same cold, a woodthrush came several times and ate shriveled yaupon berries from boughs in a jar on my porch. Evidently this uncongenial fare will keep life in their little bodies.

Two prickly but attractive small trees which furnish food for the birds are prickly ash (*Xanthoxylum clava-herculis*) and Hercules club (*Aralia spinosa*). The fruit of the former is not showy, but borne in small clusters. The latter has, usually, a single stem, and bears aloft a great panicle three feet across. The stems are red, the berries wine-purple, very pretty.

Hackberries bear small sweet berries loved by the song-makers. Flocks of tiny birds swarm over the sweetgums in winter, taking the little winged seeds from the prickly cones.

■ **Holly thrives in cultivation, and supplies both shelter and food for birds.**

There are many herbaceous plants which attract certain birds. The seeds of thistles and milkweeds are eaten by all the finches. Quail and other birds like the wild peas and seeds of other legumes. Many grasses are quite ornamental, and grasses bring the sparrows—and I do NOT mean English sparrows! Our many native sparrows are among our most attractive songbirds, and should be protected. In winter the tiny grass seeds are much appreciated.

We should not limit our interest to the friends of our gardens, but must also think of the many valuable and interesting birds of our large wooded areas. If forest fires could be kept out of the pine hills, there would be no need to worry over the birds in this type of country. Soil that is too poor to support crops will grow abundant food for the feathered population. Where fires are not numerous or severe, sand hills are carpeted will various species of beggarlouse and lespedeza and many wild peas, favorite food of quail, dove, and finches. Huckleberry and deerberry (*Polycodium*) form a thick ground cover, and how the birds love their juicy fruits! Many sweet grasses hold their seeds to supply a winter menu; and of course most of the berry-bearing trees and shrubs already referred to elsewhere add to the bill of fare when cold days come.

PLANTING OF SHRUBS AND VINES WOULD SERVE MANY PURPOSES

Numbers of shrubs and vines serve a dual purpose: they form a mat which prevents erosion, and also gives the birds a guaranty of food. Where steep banks have been denuded, in the fields, along roadsides, in parks and gardens, if these were planted to coralberry, wild roses, berchemia, honeysuckle, yaupon, wild gooseberry, deerberry, etc., there would be no more washing away of soil, and birds could find shelter and food. And how beautiful it would be! A *triple* purpose, then, in such plantings.

After all, saving the birds is not just an unselfish piece of work; we are also doing ourselves a good turn. One does not need to be a scientist to realize that insect-eaters among the birds constitute our best defense against that "fifth column" ever in our midst—the hoards of flying and creeping things bent on our destruction. As if this service were not enough, we have the cheer brought to us daily by sweet songs and colorful flashes of bright wings.

IN THE GLOAMING

by
Maude Gallman Brown

"In the gloaming, O my darling,
When the lights are dim and low,
Will you think of me and love me
As you did once long ago?"

When the last long shadows of evening have faded and time hangs suspended between light and darkness; when familiar objects take on unreal form; in that magic hours between sunset and dark—do your thoughts ever turn to some romantic interlude of the past? Do you again in memory see the face, recall the voice, hear the half whispered words of that someone so finally, forever removed from your reach. Perhaps the parting words were spoken by you. Perhaps by the object of your esteem. Or, perhaps, the thing that parted you was nothing that either of you could overcome—some cause that could not be removed. Whatever the reason, you doubtless have thrilled to the understanding of those tender words in the lovely old song "In the Gloaming." For three-quarters of a century it has been a favorite of unrequieted love, and well it might be for it tells a true story of the unfulfilled love of its composer, Ann Fortescue Harrison.

Editor's Note:—The beautiful love story of Evangeline is well known to millions throughout the nation. Not many people know that the background for an equally romantic love story, which inspired the writing of one of the most beautiful songs ever composed, "In the Gloaming," was a place in North Louisiana.

This house, a beautiful landmark, still stands in the little town of Marion, Union Parish, Louisiana, and in this article, the author, Mrs. Maude Gallman Brown of Monroe, tells the facts about a true historical story.

A great many people know that Ann Fortescue Harrison was a native of Louisiana—a resident of New Orleans, but not so many people know that the background for the song "In the Gloaming" was a very real place in North Louisiana. The house still stands, a beautiful landmark, in the little town of Marion, Union Parish, Louisiana, and the real story is just as tender, just as touching as "Evangeline." However, whereas Evangeline sought her lover up one bayou and down another in the southern part of our state, Ann Porter Harrison, as she is known at Marion, fled from her lover—"passed away in silence. Left you lonely, set you free."

■ Front view of the house where Ann Porter Harrison fell in love with Miles Goldsby.

Probably Ann Porter suffered more acutely than Evangeline because she lacked the sustaining hope of some day being reunited with her love. The fact that it was she who put herself out of his reach forever did not alleviate her unhappiness.

"For my heart was crushed with longing,
What had been could never be,
It was best to leave you thus, dear,
Best for you and best for me."

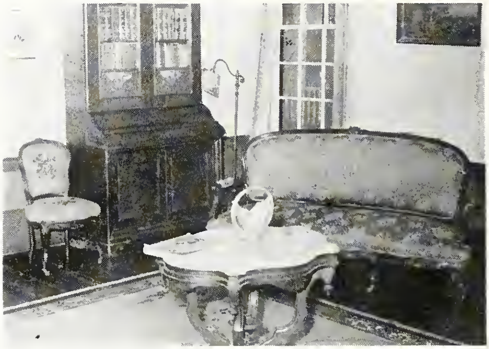
This story actually began with a small want ad inserted in the New Orleans' paper by Rev. Elias George of Marion. Rev. George had nine children to educate and it was his desire to secure a governess and someone to instruct his daughters in music. Mrs. Harrison answered the advertisement setting forth her qualifications, and Ann Porter answered stating she could instruct in piano and violin. It might be stated here that Mrs. Harrison always referred to her daughter as Ann Porter. Her friends at Marion called her simply Porter, although the correct spelling is Portesque. Through an error the name has consisitently appeared as Fortescue on the published music.

From a number of applicants for the post, the Harrisons were selected by Rev. George's daughter as most desirable. Mother and daughter came forthwith from New Orleans to their new post at Marion. Then as now the George home was a perfect setting for romance, and the brown-eyed eighteen year old Ann Porter soon became a local favorite. The young men, sons of well-to-do planters, were in constant attendance at the George home. The twenty acres of the George estate—majestic oaks, soughing pines—took second place to the wit and vivacity of Ann Porter. If she was something of a flirt—well, she was young and life was good.

WHEN HE MOVED IN THE OTHER SWAINS MOVED OUT

Then Miles Goldsby returned from one of his frequent trips to the north. It was inevitable that these two should meet. But for all his good looks and wealth, his escapades had not been looked upon too kindly. However, in true Rhett Butler fashion, he moved in and the other swains moved out. In practically no time he had cleared the field of competition for Ann Porter had eyes only for him.

But all was not serene in the George menage. Almost from the first Mrs. Harrison disapproved of the gay young Miles. Perhaps the Rev. George dropped judicious remarks to her concerning him. In any event when Miles came calling in the evenings, Mrs. Harrison took a seat in the parlor and remained until he left. This was scarcely to the liking of either of the enamored young people. What chance to murmur words of endearment? What chance to speak of a thousand dear inconsequential things lovers have always talked about?



■ In this parlor Mrs. Harrison was an unwelcomed third when Miles called on Ann Porter.

However, the resourceful Miles was not to be outdone. He commenced to call on Ann Porter early in the evenings before the lamps were lighted. Even the Victorian Mrs. Harrison could not object to the two strolling about the grounds in the late afternoon. And so the lovers walked in the garden or sat in the shadows of the oak trees. Exchanging words of love, and when some accommodating shrub provided a screen, perhaps exchanging a kiss in the gathering twilight.

"And the quiet shadows falling,
Softly come and softly go.
When the winds are sobbing faintly,
With a gentle unknown woe,
Will you think of me and love me
As you did once long ago?"

However, when the lamps were lighted Mrs. Harrison would come to the door and call, "Ann Porter, it's time to come inside." To which Ann Porter always dutifully answered, "Yes, mother. I'm coming." Then they would sit in the parlor with mother for company, making conversation while their thoughts and hearts remained outside in the gloaming. Presently, Miles would take his leave with a conventional "Good night," and a whispered, "I'll see you tomorrow. In the gloaming."

But the time came when Mrs. Harrison was no longer content to exercise silent disapproval. She talked to Ann Porter. Giving her reasons for disapproving of Miles, and pointing out that the music loving girl had little in common with the bold young man. And despite her love for Miles, Ann Porter could see that her mother was right.

MARION LEAVES AND THEN WRITES A SONG

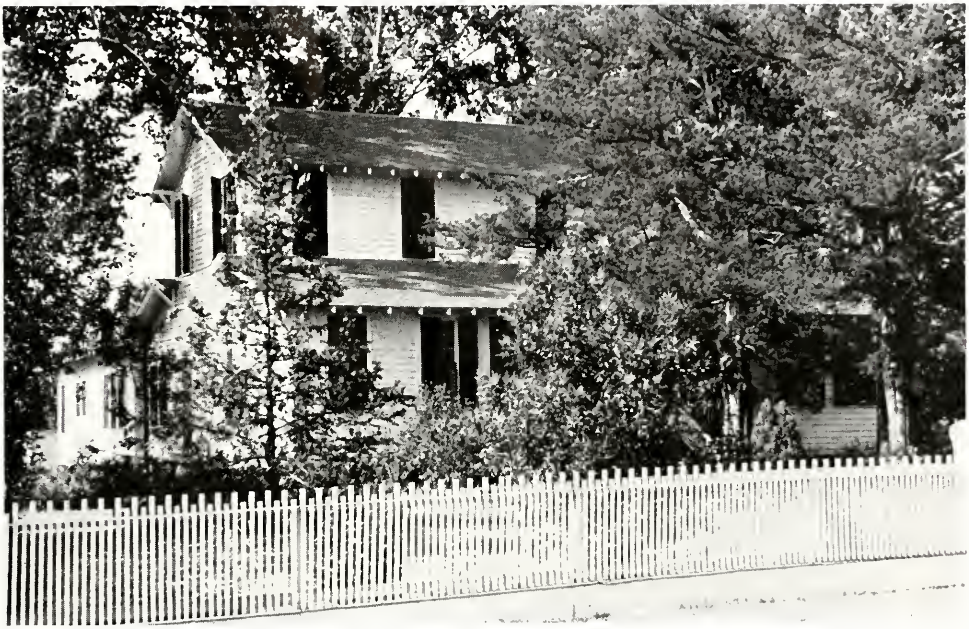
However, Ann Porter could not bring herself to tell Miles their romance would have to end. She could break her own heart in giving him up, but she could not bear to see the hurt in his eyes, his silent grief, if she told him she was leaving his life forever. Or perhaps she knew that if she told Miles of her plan he would overcome her ability to reason; sweep her off her feet; and crush her own feeble resistance in his strong arms. So mother and daughter decided to wait until Miles again went north. In his absence, and without a word to prepare him for what took place, the Harrisons packed their belongings and left Marion never again to return.

"Think not bitterly of me!
Though I passed away in silence.
Left you lonely, set you free."

Some time later Ann Porter wrote from New Orleans to a friend at Marion that she would have a song published soon. The name of the song, as you doubtless have guessed was "In the Gloaming." Ann Porter composed the music and Meta Orred wrote the words in line with Ann Porter's suggestions and the story of her romance at Marion.

What became of the heart-broken Miles? He later found consolation in marriage, although he died a violent and untimely death. The story is told that in one of his escapades he fled to the George home, scene of his earlier romance, and flung himself from an upstairs window to his death. Possibly justifying the mother's objections to the match.

But the house, beautifully preserved, is still there. The oaks are still there,



■ This house is the setting for the song, "In the Gloaming".

too, as is the parlor. The place is owned by Mrs. J. L. Hopkins and aside from its sad sweet story, its rooms filled with rare antiques compell the respect of all who are privileged to see them.

It is a sad commentary upon the cultural life of Louisiana that few know the history of this lovely old place. A man living within eight miles of Marion was sure the house had been torn down and a school built on the site A man in Marion, less than one block from this house, had never heard of it. Neither garden clubs, literary societies, nor musical organizations have visited the place for the pleasure and inspiration such contact must surely bring. For who could walk where those two walked without experiencing a "hushing" quietness, a quickening of the pluses, a weird sensation of being part of a story—a story that was lived long ago. A feeling, too, that all Ann Porter's tears have crystalized and left this perfect thing—her song "In the Gloaming."

TOURISTS WOULD GO FAR TO SEE THIS BEAUTIFUL PLACE

This beautiful place, which I always want to call "Gloaming Castle," is in good hands now. The owner loves it alike for its beauty and its history, but shouldn't the State of Louisiana take some step to insure that it will always be so well cared for? Don't we as citizens of Louisiana want to insure its perpetuation to generations that will follow? And finally wouldn't it be practical to put up markers on the highway so that tourists and other interested persons could find the place more easily?

CHICOT PARK

(An editorial from the Bunkie Record)

We had the pleasure last Saturday of visiting Chicot Park and fraternizing with the officer personnel and members of the CCC Camp stationed there. They are a fine bunch, and we are glad that we have such young men near us, and who frequent Bunkie often. The officer personnel are also men of high calibre, and who are doing a fine job in building up the mental, physical and moral fiber of the young men entrusted to their keeping.

There is to be another CCC Camp placed somewhere in this vicinity, and it is the hope that it will be placed in Chicot Park. The Rotary Club at its meeting Wednesday endorsed the idea and has dispatched a letter to State and Government officials asking that Chicot Park be seriously considered when the placement is made. Chicot Park offers every advantage to these young men. It is situated in one of the healthiest spots in the State, is close to live, progressive communities—Ville Platte and Bunkie—and has advantages not offered in many other localities.

We also had the pleasure of meeting Carrol L. Wood, Director State Park Service of the State Department of Conservation. Mr. Wood is very much pleased with Chicot Park and Camp 1427, and made a fine talk at the gathering Saturday. He complimented highly the manner in which the camp is conducted, and also brought to light the fact that out of some twenty-six other camps in this area, that the Chicot Park aggregation took tops in all contests.

We hope to see more boys like this come near us. It is a pleasure to have them visit our community and mingle with our people. It is the sincere desire and hope of this newspaper, the officials of Bunkie and our people as a whole that the new camp will be located in this area.

Biological Treatment of Sulphate Mill Waste

by
C. L. Davis, Jr.

In search of means to improve the methods of waste disposal now in use, studies in biological treatment were undertaken at the Southern Kraft Springhill plant, in accordance with the working agreement of the Technical Advisory Board of the Pulp and Paper Mill of Louisiana. As there is no previous reported information on this means of treatment applied to sulphate waste, the work as presented herein, has all the ramifications of the trial and error method found in most pioneering experiments. In a recent article published by C. N. Sawyer*, biological oxygen demand removals from waste sulphite liquor is restricted because of insufficient supply of available nitrogen. It is highly probable that the 30 per cent B. O. D. removal obtained in these experiments are likewise restricted by insufficient nitrogen.

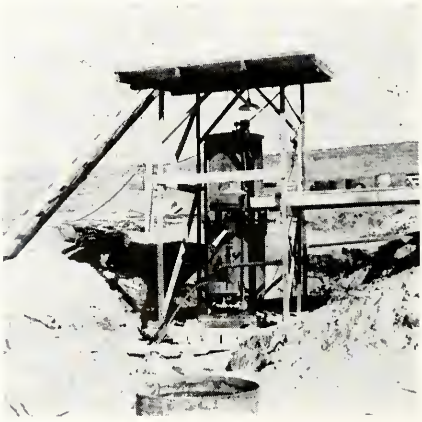
In sulphate pulp and paper mills where impounding basins are permissible, waste are stored during the low water periods and discharged under careful control as the stream rises. This is simply using one of the oldest forms of sewage disposal known—disposal by dilution. Under such methods, the stream is the treating plant furnished by nature. However, it has the limiting factors of mechanical units in as much as there is a definite leading capacity and fluctuating efficiencies under different operating conditions. The work of the Division of Research has been in the direction of determining the limiting factors involved as a guide to establish standards of purity and permissible waste discharges.

During the year 1939-1940 550 million cubic feet of impounded paper mill waste, in addition to the daily discharge of 2.5 million cubic feet from the Southern Kraft plant, was disposed to Bodcau Bayou, using dilution control methods. Ratios of waste discharge to stream flow from 1 to 5, to 1 to 20 varied according to temperature, natural stream purity and volume of stream flow, maintained aerobic conditions during the waste stabilization. The average dissolved oxygen sag did not extend over 34 miles of stream flow. With a small stream such as Bodcau Bayou, the conditions maintained were quite favorable when considering the quantity of waste handled. In spite of the improvement of conditions the utilization of such a large mileage of the stream cannot be considered as a final solution of the problem. The weakness of the method lies in its dependence on weather conditions when the pollutional load on the stream is so close to its maximum capacity. This past year it was first questionable whether Bodcau Bayou would rise sufficiently in time to allow discharge before the basin reached its capacity. Then it was questionable whether the bayou would sustain its flow to permit emptying the reservoirs. The uncertainty of what the next season will be, wet or dry, leaves too much to chance. Therefore, any economical method of reducing the total pollutional load to the stream or supplementing the natural correction and purification, is a safe guard at a later date.

HIGHLIGHTS OF BASIC CHANGES ARE REVIEWED

Reviewing the phases of change in waste characteristic from the point of discharge at the plant to its final stabilization in the stream, the following highlights are of interest:—

The waste discharged to the impounding basin is the combined waste from pulp mill, bleach plant and paper mill. On entering the impounding basin, as the velocity drops, a large percentage of suspended matter, carbonates, fibre, resinous fatty acids precipitated by the lime waste water, settle to the bottom. The addition of the bleach waste not only lowers the pH of the combined waste to 8.3, but likewise reduces the B. O. D. (biological oxygen demand). In all, through sedementation and the effect of lime and bleach waste, the B.O.D. of the fresh mill waste, drops approximately from 730 to 375. In the basin proper, bacterial activity and dilution by rain water are most important factors as further B.O.D. reductions from 375 to 65 have been recorded. Under the most favorable conditions a reduction of 90 per cent in B.O.D. can be expected from the time the waste enters the basin to the time of discharge. In addition, losses in volume during the period of retention have been estimated between 30 to 50 per cent through evaporation and seepage. The effect of retention is further illustrated by the typical analysis as shown:



■ **Fig. 2. Biofilter pilot plant. Loaned by the Donn Chemical Company.**

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*"B.O.D. Removals from Waste Sulphite Liquors—Sewage Mixture by Activated Sludge." Industrial and Engineering Chemistry, March, 1941.

The data as presented is not based on averages but selected to stress the importance of combining the sewers and the function of the impounding basin. B.O.D. values of the final waste discharge vary as much as 55 to 240.

TABLE I

	PH	Oxygen Demand	Total Solids Fxd.	Total Solids Vol.	Suspended Solids Fxd.	Suspended Solids Vol.	Soluble Solids Fxd.	Soluble Solids Vol.	Total Na as Na_2O	Total Alkalinity NaOH
To Basin	8.6	270	1107	651	348	205	759	446	543	144
From Basin	7.6	140	753	330	22	10	731	320	1140	296

By controlling the discharge of waste from the impounding basin to Bodcau Bayou, stabilization of two and a half million gallons of waste per hour was obtained under favorable conditions within 40 hrs. of stream flow. This stabilization depends not only on dispersion, but on oxidation by dissolved oxygen in the stream, and on bacterial activity. Dissolved oxygen test readily disclosed the zones of degradation, active decomposition and recovery. Bacterial activity was further substantuated by the presence of sludge deposits and luxurant slime growth in the channel and near the banks of the stream. It seemed reasonable to assume, that if the waste as discharged will decompose under natural conditions within a relatively short period of time, that it would behave similarly under controlled methods applying biological treatment. The character of the waste, pH of 8.3, low total solids, low B.O.D. and the B.O D. 30-day curve (Fig. I) add encouragement to this method of approach to the problem.

SERIES OF STUDIES UNDERTAKEN AT SPRINGHILL MILL

After careful consideration of the characteristics and behavior of the waste as described, a series of studies were undertaken at the Springhill plant on March 23, 1940. The initial set up included direct feed by gravity flow through spray nozzles to a bed of rock seeded with bacteria from the local sewerage treating plant. It was thought that simple aeration and application to a trickling filter would reduce the relatively low B.O.D., sufficiently to accomplish the desired results. However, negligible reductions in oxygen requirements, clogging and septic conditions in the lower strata of the bed soon made it necessary to increase the rate of flow and provide under-drains for the bed. When this was done, the increased rate

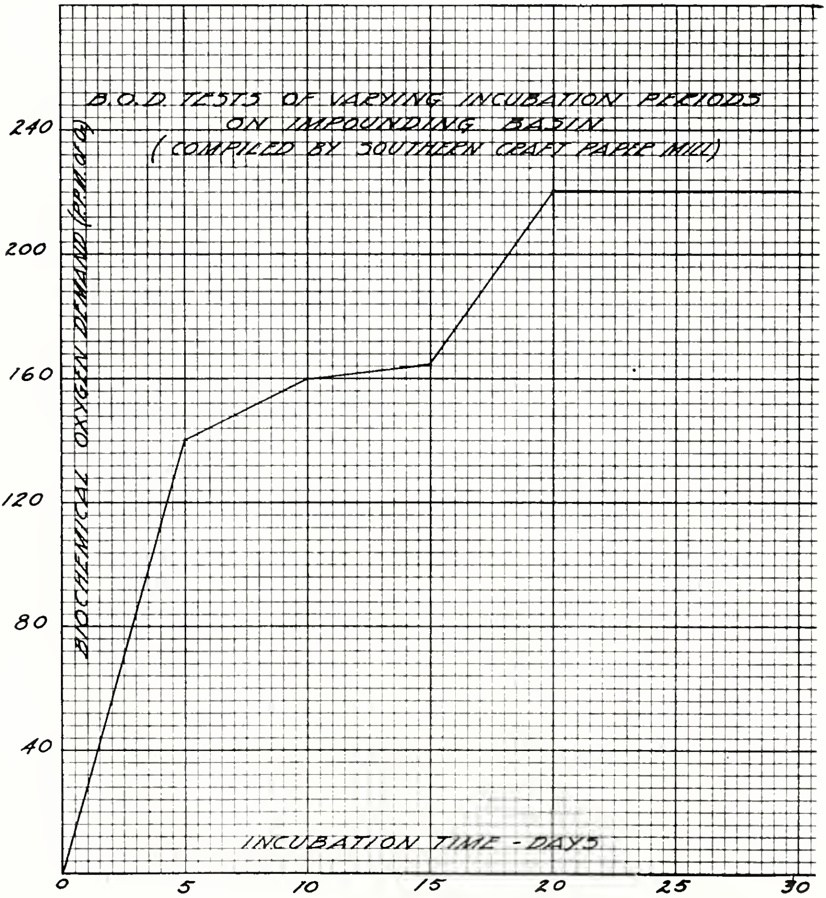

Fig. 1

TABLE II

DATE (1940)	11/14	11/15	11/16	11/17	11/18	11/19	11/20	11/21	11/22	11/23	11/24	11/25	11/26	11/27	11/28
Raw Dosage Rate (Gal/min)	.5	.5	1	1	1	1	1	1	1	1	2	2	2	2	2
(million gal/acre 1 day)	4.44	4.44	8.88	8.88	8.88	8.88	8.88	8.88	8.88	8.88	17.8	17.8	17.8	17.8	17.8
Total Dosage Rate (Gal/min)	4.5	4.5	2	2	4	4	6	6	8	8	4	4	6	6	8
(million gal/acre day)	40.0	40.0	17.8	17.8	35.5	35.5	53.3	53.3	71.0	71.0	35.5	35.5	53.3	53.3	71.0
Recirculation Ratio	8	8	1	1	3	3	5	5	7	7	1	1	2	2	3
Temp.—Deg. F.	47	60	65	47	55	59	65	63	62	59	57	55	55	52	55
Dissolved Oxygen Clarifier	5.0	..	..	..	2.9	2.7	2.7	2.8	2.5	2.7	3.0	4.0	3.4	2.8	2.7
ppm. Effluent	..	..	..	..	3.3	3.1	3.2	2.8	2.8	2.9	3.3	4.3	3.5	3.0	3.0
pH to Biofilter	..	..	..	..	7.8	7.9	7.9	7.8	7.7	7.7	7.6	7.7	7.7	7.8	7.8
Effluent from Biofilter	..	..	..	..	7.8	7.9	7.9	7.8	7.8	7.7	7.7	7.7	7.8	7.8	7.9
B.O.D. (Feed)	124.6	118	112	120	123	116	120	112	115	116	120	119	114	117	128
Effluent	82	80	76	83	84	83	81	76	83	80	82	93	85	85	85
% B.O.D. Removal	34.1	32.1	32.1	30.9	21.7	29.3	32.5	32.1	27.8	21.1	28.6	21.9	25.4	27.3	33.6
B.O.D. load #/cu. yd./day	.95	.90	1.71	1.84	1.88	1.78	1.84	1.71	1.76	1.77	3.77	3.65	3.49	3 58	3.92
B.O.D. removal #/cu. yd./day	.32	.29	.55	.57	.60	.52	.60	.55	.49	.55	1.08	.80	.89	.98	1.32
Solids/day in sludge in pilot plant (gms/day)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

DATE (1940)	11/29	11/30	12/1	12/2	12/3	12/4	12/5	12/7	12/8	12/9	12/10	12/11	12/12	12/13	12/14
Raw Dosage Rate (Gal/min)	2	3	3	3	3	3	3	4	4	4	4	5	5	5	5
(million gal/acre 1 day)	17.8	26.6	26.6	26.6	26.6	26.6	26.6	35.2	35.2	35.2	35.2	44.4	44.4	44.4	44.4
Total Dosage Rate (Gal/min)	8	4	4	6	6	8	8	6	6	8	8	6	6	8	8
(million gal/acre day)	71.0	35.5	35.5	53.3	53.3	71.0	71.0	53.3	53.3	71.0	71.0	53.3	53.3	71.0	71.0
Recirculation Ratio	3	1/3	1/3	1	1	5/3	5/3	1/2	1/2	1	1	1/5	1/5	3/5	3/5
Temp.—Deg. F.	57	57	55	53	53	54	55	54	55	55	57	59	59	57	57
Dissolved Oxygen Clarifier	2.8	2.9	2.8	2.9	3.3	3.2	3.1	3.0	2.8	2.7	2.6	2.7	2.2	2.3	2.2
ppm. Effluent	2.9	2.7	2.8	3.0	3.0	3.3	3.3	3.0	3.0	3.0	2.8	2.9	2.0	2.5	2.5
pH to Biofilter	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	..	..	..	..	..	..
Effluent from Biofilter	7.8	7.8	7.9	7.9	7.8	7.8	7.8	7.8	7.8	..	..	..	..	..	..
B.O.D. (Feed)	123	120	126	120	114	118	118	118	114	111	116	105	115	102	108
Effluent	87	95	100	93	83	80	85	95	90	78	80	80	90	80	87
% B.O.D. Removal	29.3	20.8	20.7	22.4	27.2	32.2	28.0	19.5	21.0	29.7	31.0	23.8	21.8	21.6	19.8
B.O.D. load #/cu. yd./day	3.77	5.51	5.79	5.51	5.23	5.42	5.42	7 33	7.09	6.90	7.21	6.54	8.81	7.79	8.26
B.O.D. removal #/cu. yd./day	1.11	1.15	1.20	1.23	1.45	1.75	1.52	1.43	1.49	2.05	2.24	1.56	1.92	1.68	1.63
Solids/day in sludge in pilot plant (gms/day)	..	..	..	..	..	..	..	..	13	8	9	21	16	..	..

Area of bed	0.785	sq. yd.
Volume of bed	1.0	cu. yd.

of flow shortened the period of contact and introduced foaming problems. To overcome the new difficulties, a retention chamber of center-match was installed and a proportionate quantity of waste recirculated, eliminating mechanical entrainment of air wherever possible. On making these changes, the new set up resembled the single stage intermediate biofilter as describd by Fisher and Thompson (Municipal Sanitation, November, 1939). In this process, the filter is the source of oxygen and microorganisms and performs as a coagulator of the colloidal material in the waste. Only a fraction of the B.O.D. reduction is affected in the bed. Completion of the stabilization occurs in the detention tank utilizing the reserve oxygen supplied by the filter bed. High dosage rates used in the process gives a continuous unloading of biological film from the filter media, thereby maintaining proper ventilation and preventing clogging. Uniformity throughout the bed increases the efficiency and permits higher filter loading. Another important feature is the elimination of septic conditions in the detention tank as shorter retention periods are required.

Fundamentally all mechanical requirements were satisfied by changing over to the new set up with one exception—providing satisfactory means of keeping the retention chamber free of sludge without disruptiong the operation of the unit. This disadvantage combined with the inability to control flows due to leaks, and fluctuation and breaks in operation caused by changes in basin water level, introduced factors which made the results obtained questionable Consequently, the experiment was temporarily discontinued on July 28, 1940.

In the latter part of September, the Dorr Company offered the use of their experimental biofilter unit, complete in every detail. The new pilot plant (Fig. 2) was set up and put into operation on October 3, 1940.

FURTHER EXPERIMENTS AT MILL ARE DESCRIBED

Starting the new unit, ninety gallons of aerated activated sludge from the primary tank of the Springhill municipal sewerage plant was circulated through the system two hours to impregnate the bed. Gradually the sludge was replaced by waste paper mill water by introducing one gallon of waste per minute recirculating 4.5 gallons of the mixture, per minute. Within three days, slime began to appear on the rocks and in the laundry of the detention tank. However, no marked chemical changes in the waste were recorded. Addition of slime from the basin spillway to the filter bed apparently hasten bacterial activity as the whole system was permeated with heavy slime growth within 48 hours.

From October 8 to October 23, filter loadings were varied to determine the possible oprating limits of the unit. For the lower limit, a total loading of 5.4 gallons per square yard per minute were required to prevent clogging of the bed and pipes. The upper limit was fixed at 10.2 gallons per square yard per minute total load, by excessive foaming. Conditions were then set and maintained at 2 gallons feed per minute recirculating 4 gallons per minute until November 14 to assure maturity of the bed.

Between the limits of 5.1 and 10.2 gallons per square yard per minute systematic study gave the results as listed in table II (see opposite page). From this data the following conclusions are drawn:—

1. Sulphate pulp and paper mill waste subjected to preliminary sedimentation and impoundment has a possible B.O.D. reduction of approximately 30 per cent through biofiltration treatment. This applies only to waste that have not been supplemented with any other nutrient materials for biological metabolism and growth of the microorganism involved.
2. Increasing the dosage rates increased the efficiency of the plant measured in terms of B.O.D. removal per cubic yard per day A limitation of 8 gallons per minute or 10.2 gallons per square yard per minute was set by excessive foaming.
3. Optimum conditions were 4 gallons per minute (5.1 gal./sq. yd./hr.) with a recirculation ratio of 1. This condition gave a maximum B.O.D. removal of 2.24 pounds per cubic yard per day with a minimum recirculation value.
4. The slime film on the rock balast is stable and will not slough off as reported in domestic sewage investigations, provided dissolved oxygen is maintained in the clarifier effluent.
5. Negligible sludge formation, 15 grams per day from a feed of 5.780 gallons per day indicates that only oxidizable materials with soluble end products are affected by the treatment.

There is no doubt, under the circumstances of the carefully controlled test, that 30 per cent reduction in B.O.D. approaches the maximum which can be realized under the existing conditions. Until a more complete analysis of the waste from the point of substance required for the maximum activity of the organism, the B.O.D. reductions cannot be accepted as limiting values.

Acknowledgment:

These experiments were made possible through the invaluable assistance and cooperation of the Southern Kraft Corporation. Mr. H. D. Shope, Dr. George Clark, Mr. E. S. Krouse, and members of the laboratory staff all contributed their time and valuable suggestions for the completion of the work. Appreciation is also extended to Mr. L. Cusachs and other members of Division of Research & Statistics Staff, for their helpful criticism and suggestions.

CONSERVING OUR GAME

(Opelousas Daily World)

Our hunters and sportsmen have in recent years worried about the scarcity of game. Quail, dove, deer and other native game are not as plentiful as they once were. Empty hunting coats and game bags have become the rule during the past few seasons. Every year, of course, has heard the optimistic: "It wasn't cold enough this year; next year will be better." Or, "the birds are all west of here, where the food is better." But a hunting trip "west of here" was not overly productive, either. The truth of the matter is that there just aren't as many birds as there have been. Maybe sportsmen won't readily admit it, but they are concerned with the situation. The result is that they have banded together all over the state, in wildlife associations dedicated to the purpose of working for and assisting in wildlife conservation and propagation. Their first real action after organizing the Opelousas Wildlife Association here was the releasing of 25 pairs of quail last fall, on various St. Landry farms. Very shortly the group will turn out 400 more quail on farms throughout the parish, spacing the birds so as to get best cover. Ten farmers have already filed applications with President A. K. Smith, Jr., of the association, and many others will file shortly. The quail are free, and are furnished by the state conservation department. The releasing of these 400 mated birds means that the nucleus of 200 coveys are being turned loose in the parish. The plan is to make similar quail releases at regular intervals in the future, as often as the birds can be secured.

FORESTRY DIVISION BUILDING DISTRICT QUARTERS AT MINDEN

The construction of a permanent district headquarters unit for District No. Four, Louisiana division of Forestry, has begun in Minden. The total cost of the project is to exceed $20,000.

A two-acre plot of ground located one-quarter mile north of the Minden city limits was donated by Bobbie Turner, Minden real estate and lumber man.

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What Palms Grow In Louisiana

By
Miriam L. Bomhard

PART IX

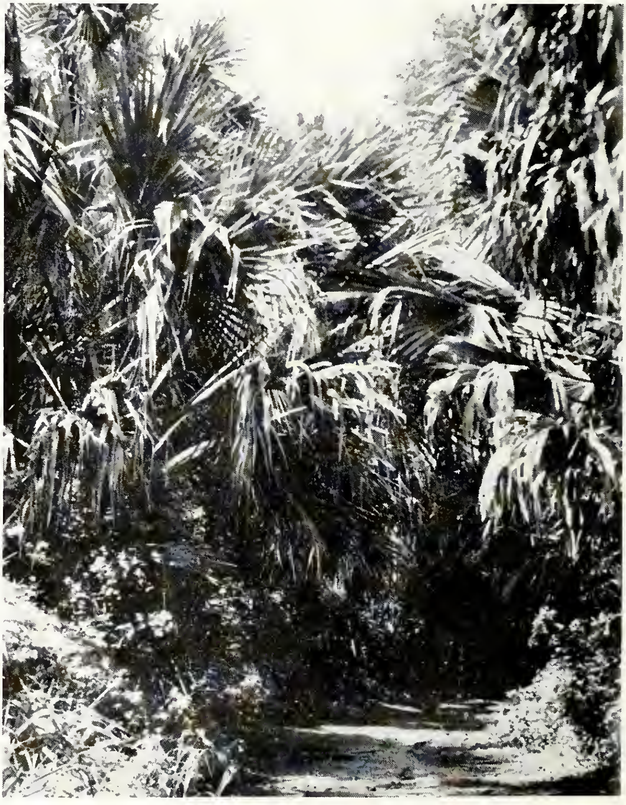
A general introduction to the palmetto genus, SABAL, was given in Part VIII (Autumn 1940) and three species, the Puerto Rican palmetto (*S. causarium*), the cabbage palmetto (*S. palmetto*), and the Victoria palmetto (*S. exul*), were discussed. The Texas palmetto will be considered in the present article.[1]

S. TEXANA (Cook) Becc. (*Inodes texana; S. mexicana* of authors). Texas palmetto.

The Texas palmetto is native in a rather restricted area on both banks of the Rio Grande River, first named Rio de las Palmas, in the general region of Brownsville, at the southernmost tip of Texas. Beginning inland from the coast about 10 miles south of Brownsville, its distribution is more extensive on the United States side than on the Mexican side of the River. Isolated individuals or scattered groups may be seen from the road as one travels toward Southmost, but there are very large native stands near the river on a number of privately owned ranches. A sign, "Palm Grove", on the right of the Southmost road marks the entrance to the best known and most beautiful of these natural groves. Here, on the Frank Rabb ranch which is open to visitors, are a hundred acres of Texas palmettos in a tangle of native jungle in vegetation—certainly one of the most interesting palm areas in the United States. In the midst of tens of thousands of palms, it is difficult for the visitor to comprehend that the freeze of 1933 took a considerable toll of trees.

Fig. 66 shows a path in the palm jungle. The tallest palms attain 50 ft. in height and a diameter of 18 inches or more. Some trees naturally retain the old split petiolebases (boots) whereas others cast them off—a peculiarity previously noted for the cabbage palmetto. The bark is light reddish brown and marked by rough leaf-scar rings. Young specimens growing in deep shade have unusually large leafblades borne on very long petioles. Fig. 67 illustrates a young specimen growing in the open. Inasmuch as there is variation among palms under different conditions in their native home, it is not surprising that it is often difficult to reconcile the appearance of cultivated palms on streets and in gardens with their aspect in the wild state. The practice of prompt trimming of the dead leaves is, of course, a contributing factor.

The Texas palmetto is very handsome as an ornamental (Fig. 68) and is extremely satisfactory in cultivation since it has proved to be quite hardy. It is easily raised from seed, grows slowly at first, and requires about 25 years to attain full maturity. It seems strange that it is not widely represented in Louisiana plantings. Several years ago, there were a few



■ Fig. 66. A path through the jungle on the Rabb ranch, south of Brownsville, Texas. (S. TEXANA)

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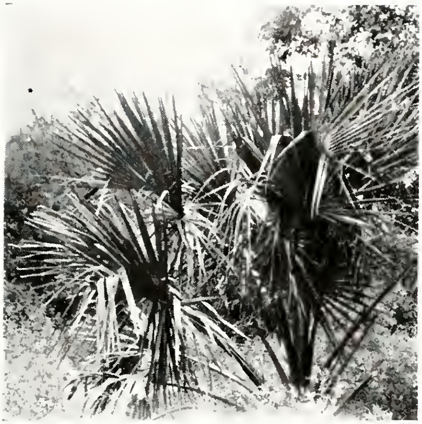
[1] Fig. 58, showing the undersurface of the middle of a leaf of the Puerto Rican palmetto (*S. causiarum*), illustrates the strongly curved rachis so characteristic of certain of the larger-leaved palmettos and completes the figures for Part VIII. The last sentence in the first column on page 45 (Autumn 1940) should read: The origin of the 106 or so segments, at most 3 inches wide, is illustrated in Fig. 58. The captions on page 46 for Figs. 60 and 65 should be interchanged.



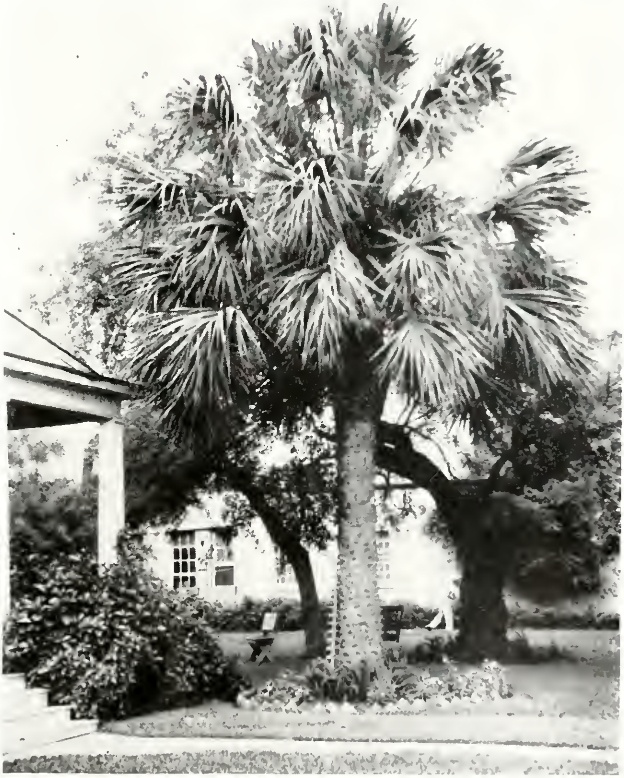
■ Fig. 67. A young Texas palmetto growing naturally in the open near Southmost, Texas.

young trees in Audubon Park, New Orleans, but they have, for some reason, been removed. At the present time, I know of only one Texas palmetto in Louisiana; it flourishes, interestingly enough, in the more northern portion of the State, less than 15 miles south of Natchitoches. This very fine specimen is owned by Mrs. C. G. Henry of Melrose Plantation. It was a young pot plant when she set it out 18 years ago. When I saw it in 1933, it was 10 years old, the trunk was 5 ft. 10 inches in height, and it was already producing flowers and fruits. Mrs. Henry, who has very kindly kept me informed concerning this palm over a period of years, wrote me in December, 1938, that the palm had grown tremendously, fruited abundantly, and that she had set out over 100 seedlings. The trunk measured 17 inches in diameter at the ground line and was then 10 ft. tall.

In reply to my most recent inquiry concerning her palm, Mrs. Henry writes: "Indeed the *Sabal texana* is living and growing. Cold has not touched even the tender seedlings. It is the palm for Louisiana—a gorgeous thing."

The Victoria palmetto (*S. exul*) and the Texas palmetto closely resemble each other in general appearance. However, the fruits of the Texas palmetto are somewhat larger, frequently ripen as "twins" or "triplets", and the position of the embryo is at the middle of the seed, placed horizontally, rather than above the middle at a downward angle. The ripe fruits are black, contain a sweet flesh, and are edible.

The flowering stalks equal or, in older trees, slightly exceed the leaves. The main axis is round, green, and

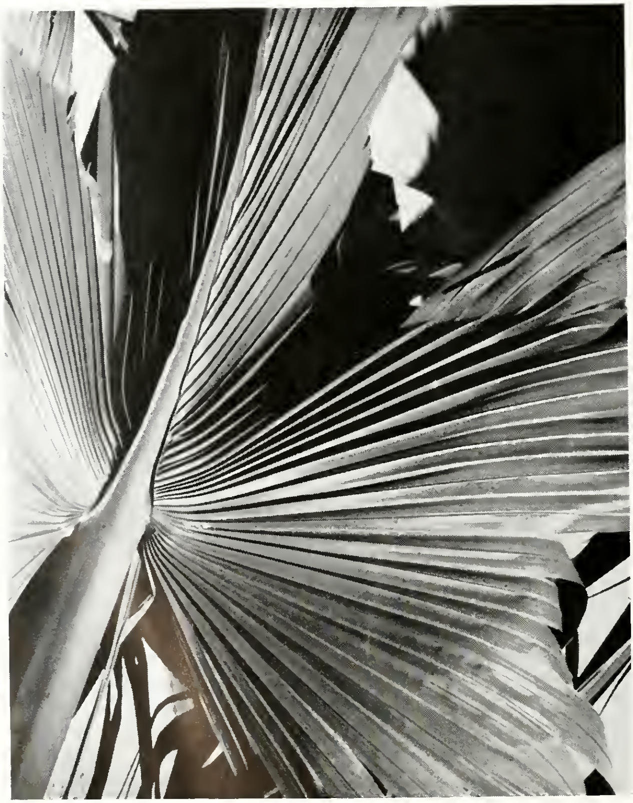


■ Fig. 68. Cultivated Texas palmetto at Brownsville.

smooth; the spathes are very long-poinetd. The 20 or more branches, emerging from all but the lowest two spathes, are rather evenly graduated. In young trees, the lowest measure about 2½ ft. in length and those at the middle are but a few inches shorter. They tend to spread away from the axis as they come into flower (early June in south Texas). The fragrant white flowers are slightly over ¼ inch high and very evenly and closely spaced on the final subdivisions of the branches.

The decidedly curved leaves average 8 or 9 ft. in width and just under 5 ft. in length. The strong winged rachis (midrib) extends through a little more than half of the blade along the center line and ends in a single long flat fiber. Only about 1/3 of the blade is solid. There are 100 or fewer primary segments which are themselves most deeply split (more than half their length) at the sides of the blade. The tips of the segments are rather finely pointed in young leaves, less so in older ones. They stand out in various directions, much as in *S. exul; i. e.*, some fairly stiffly, others drooping. A long fiber dangles in both the primary and secondary clefts of young leaves but only those of the primary clefts tend to persist in older leaves. The petioles usually exceed the blades in length.

The houses of poorer Mexicans are thatched with the leaves of this palm. The trunks are useful as posts because they are very durable in contact with the soil. The late Doctor John K. Small has written an article, "The palmetto-palm—Sabal texana", published in the Journal of the New York Botanical Garden (vol. 28 pp. 132-143. 1927), which gives a charming and very informative history and discription of the Texas palmetto.



■ **Fig. 58. Under surface of leaf, showing winged rachis. (S. CAUSIARUM)**

LOUISIANA DELEGATION IN CONGRESS THANKED FOR COOPERATION

Fred J. McCormac, Chairman of the Board of the Department of Conservation, advises that Louisiana's senators and congressmen in Washington are battling one hundred per cent to assist Louisiana's constructive conservation program.

They have been called upon twice. The first time to use their influence to restore an arbitrary cut made to the Pittman-Robertson funds, which would have cost Louisiana many thousands of dollars.

Recently they were requested to make an effort to remove the clause requiring the registering of sportsmen's shotguns, and also to remove the clause in the bill which would give the government the right to confiscate these guns.

"Everyone in Louisiana who is interested in constructive conservation is certainly grateful to our wide-awake senators and congressmen in Washington", Mr. McCormac declared.

The Louisiana delegation in Congress consists of Senators John Overton and Allen J. Ellender, and Congressmen Hale Boggs, F. Edward Hebert, J. Y. Sanders, Jr., Vance Plauche, Leonard Allen, Overton Brooks, Newt Mills and James Dommenaux.

FREE FISH A COSTLY BUY

The housewife who pays 15 or 20 cents a pound for fish in the neighborhood market gets the break every time over the sports fisherman who fishes for the fun of it and pays, for every piscatorial item he brags about, an average of from 3 to 5 dollars a pound.

Unofficial estimates in sports-fishing circles hold that 13,000,000 sports fishermen spend more than $1,000,000,000 a year for the privilege of getting out into the waters and "tryin' the ol' family luck." Fishing licenses, these sources estimate, cost them more than $10,000,000; tackle equipment, $35,000,000; transportation, hotel quarters, food, gasoline for automobiles and launches, hats, coats, shirts, jackets, trousers boots, overcoats, tents, cots, blankets, and miscellaneous odds and ends total more than $955,000,000.

Sports fishermen sell no fish, so they derive no profit from their efforts, and they outnumber the men engaged in commercial fishings, 80 to 1.

Recreational fishings as a sports industry is said to top all sports, including golf, baseball, tennis, football, skiing, polo, basketball, hockey, ice skating, hunting, swimming, and roller skating.

A Message to the Members of the Louisiana Wildlife Federation

by

John G. McCloskey

You who are interested in the protection of bird, animal and fish life have begun to realize that proper habitat is the most important thing in conservation work.

Habitat means a suitable place where food, cover and water are available for birds, animals and fish to live and rear their young.

Conservation authorities know that the small boy with the B B gun or .22 rifle is a negligible factor in the conservation of bird life Yet, the average person swings into action when he sees the small boy shoot a robin or woodpecker and demands that the enforcement officers make arrests and do something about it.

On the other hand he looks on without a protest when he passes a crew of laborers cleaning up a park, cutting out the undergrowth in a forest, or running a drainage ditch through a marsh. The damage they do is far more destructive than that done by the boy with a gun.

When we cut out all the underbrush from a forest we destroy the protection and nesting spots that quail, rabbits and other ground living birds and animals require.

When a marsh is drained the fish, muskrats, rails, marsh wrens, herons and ducks that live there are done away with just as surely as if they had been shot or poisoned.

We drive along in our automobile during the winter and see the grass fires burning merrily through our cut over pine forests with hardly a thought of the damage done by these fires.

Grass fires not only destroy young trees, but also food and cover for game. It will thus be seen that fires in the woods and fields are one of the main causes of keeping down the timber supply, of exposing the soil to erosion by winter rains.

Fire destroys the food and cover for birds and wild game. (In this cover game and insect eating birds such as quail, the brown thrasher and the wild turkey as well as other birds make their nests.) Fire is the means of destroying the wild azalea, dogwood and other wild flowers. Fire has caused more loss to farmers lumbermen and hunters than can be figured out in dollars and cents.

Have you ever done anything to stop or prevent these fires?

TO THE FIRE SETTERS

Here is some information directed to those who do set fire to the woods. A lot of you believe that by burning off the old grass during the winter, earlier grass is obtained in the spring.

■ The razor back hog has proven to be very destructive in our woods and bottomlands.

■ Burnt over pine woods, Washington Parish. Trees, wild flowers, food and cover for game destroyed.

Careful study of this claim by Government Agencies has clearly shown that not only do no benefits result from burning pastures and ranges but, that serious injury inevitably follows.

Through the fall and winter, grass, as well as other vegetation makes some growth under shelter of the dead grass and leaves. Being protected by the cover of old grass and fallen leaves, it is concealed from view but the cattle easily pick it out. When the range is burned, the existing green grass is destroyed along with the old vegetation and leaves.

There follows a considerable period, until the growth of the new spring grass, when there is no sort of cattle food whatever. The fire "shocks" the grass roots and causes a dormant period before the roots start growing again. Much of the grass and other plant life is killed outright.

THE OPEN RANGE

Land owners in the wooded sections of Louisiana know that cattle owners very seldom own the land on which the cattle range.

Instead of cattle owners having to fence in their cattle, the land owner is required to fence in his land to keep the cattle out.

Our highways are also open grounds for cattle. The person who is unfortunate enough to smash into one of these four-footed tanks has in most instances no recourse with the law. You can wreck your car and kill your family and have a tough time convincing a court of justice that the owner of the cow or pig was at fault. There are a few parishes in Louisiana where no open grazing is allowed. Foremost among these being Caddo, in the Northwest corner of the state.

Another animal allowed to run loose in most of our woods and bottom lands is the pig. This animal has been proven to be very destructive. Many conservation authorities believe that the shortage of quail and wild turkey in many sections of Louisiana can be blamed on the pig.

The pig I am referring to is the one known as the razor back hog. *Razor backs are plentiful in the Tchefuncte Game Preserve, St. Tammany Parish.

We know that a pig will eat anything—young trees, roots of all kinds and when he can get it, meat One can imagine what happens to quail, turkey or rabbit nest when a razor back happens along.

■ Cattle roaming the highways are a dangerous menace.

We should realize by now that everything in this life is dependent upon something else for existence. That fish and game laws are not the only answer for wildlife protection.

Bird life needs trees and tangled underbrush for food and protection. Your job—prevent forest fires, cutting of underbrush, and ditch banks, keep cattle and pigs out.

Game animals also need food and cover. Your job—prevent forest fires, cutting of underbrush, headlight hunting at night.

Fish need clean water, food and cover. Your job—prevent pollution, drainage of marshes, cutting of trees and brush along the banks of streams.

You cannot call yourself a real conservationist if you are interested in only one phase of conservation.

You, as member of the Louisiana Wildlife Federation, must remember that, vegetation, water, wildlife, and forestry are all important parts of conservation. Land, water and vegetation are all dependent on each other. Without these primary elements in balance we can have neither fish nor game, wildflowers nor trees, labor nor capital, nor sustaining habitat for man. When water goes, vegetation departs, when vegetation departs, soil goes, when soil is gone man goes with it.

NEWS BRIEFS FROM UNITS OF LOUISIANA WILDLIFE FEDERATION

BATON ROUGE SPORTSMEN'S LEAGUE

This organization has inaugurated a series of educational meetings to be conducted by Professor George Lowry of L. S. U. in regard to bird identification. Professor Lowry will give a lecture every two weeks on how to identify various species of birds on the wing so that the Baton Rouge Sportsmen should have a more complete knowledge of not only game birds, such as ducks, but also of preditors; as for example, the Cooper's hawk when they take their guns to the field this fall.

CROWLEY SPORTSMEN'S CLUB

This organization has been going great guns under the leadership of Bill Cleveland and Ed Peckham, and have built their membership up to considerably more than three hundred in the past few months. Their recent activities include two well-attended barbecue suppers.

EAST CARROLL FISHING GAME ASSOCIATION

This organization has been one of the leaders in the work of local game fish improvements. They not only raised the money to build a dam which will maintain a water level of Lake Providence and ran a very successful Gar Fish Rodeo, but they also gave Major Brown considerable assistance in transplanting bass and other game fish from borrow pits to Lake Providence. Their efforts should be well rewarded with greatly improved fishing in Lake Providence.

NEW ORLEANS SPORTSMEN'S LEAGUE

This organization lost one of its most valuable members when Bob Blair left New Orleans to take a position in California. Bob was not only an ardent sportsman, but he was one of the sportsman in back of the membership drive conducted by the New Orleans Sportsmen's League. Last spring he won a local membership contest by bringing in almost one hundred new members, single handed.

OUACHITA SPORTSMEN'S LEAGUE

Under the leadership of John S. Fox, president, this organization has been particularly active during the past several months. They recently gave a barbecue supper for the benefit of members and friends which resulted in signing up seventy new members on that one occasion.

LIVINGSTON PARISH SPORTSMEN'S LEAGUE

This new organization has been added to the rolls of the federation during the past month. The credit for organizing this group belongs to the secretary-treasurer of the Baton Rouge Unit, Mr. J. J. Besson, who conducted the organization meeting at Denham Springs. There are several other new units in the federation since the last review was published. They are in Cameron, Sabine, Caldwell, and Grant Parishes.

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*The Singer Preserve in Madison and Tensas Parish is full of them; so is the Honey Island and Pearl River Swamp.

EDITORIAL COMMENTS ON LOUISIANA CONSERVATION ACTIVITIES

REALLY CONSERVING

(New Orleans Item)

Many Louisianians may be surprised to learn that promotion of wild life is a function of the State Conservation Commission. Hitherto it has collected licenses for fishing, hunting, shrimping, oil-drilling, and the like, prosecuted a few folks who shot game out of season, and shown visitors around a museum of stuffed birds.

There was a so-called fish-hatchery over at Lacombe, a few ponds, which were periodically inundated by nearby waters so that fish could swim out of them as they pleased, possibly depositing spawn, which possibly hatched.

The picture now changes abruptly. Enforcement Chief Don Simon goes so far as to conduct a school to instruct conservation rangers in their duties, with a faculty of lawyers, biologists, conservationists, mechanics and riggers.

On the heels of this Major James Brown begins turning our neglected Spillway area into big reservoirs of breeding stock for game fish to be used in replenishing the State's depleted waters.

The Conservation Commission in other words, is actually doing something for conservation. Times certainly do change.

VALUE OF WILDLIFE

(Field & Stream)

A number of years ago Tom Wallace, of the Louisville Times, proved by statistics, carefully gathered, that the wildlife in the state of Pennsylvania was worth far more in dollars and cents than all the cattle, sheep and horses in that famous livestock state of Kentucky.

Recently the Department of Conservation of Louisiana made a survey and concluded that the financial value of the property under its supervision totals $217,590,000, and that the sportsmen spend $20,500,000 each year in harvesting the crop. Even in these days those are big figures. And Louisiana is only one state in forty-eight, to say nothing of Alaska.

In 1917 there was much talk of relaxing conservation measures in the interest of public welfare. It was proposed to take restrictive laws off fish and game to lower the cost of living and help win the war. Certain far-seeing individuals fought such a move tooth and nail, and won.

The same proposals are creeping in at the present time. Let down the bars in behalf of the draft army. Lengthen the seasons in which game can be killed to offset the high cost of meat.

FIELD & STREAM is unalterably opposed to anything of this nature. The fish and game of this country constitute a tremendous resource. They must be safeguarded for the boys of today and for those to come.

We certainly owe an obligation to the draft army, and therefore we must not throw down the bars. There is many a sportsman in uniform who looks forward to days afield when the uniform is laid aside. It is the duty of everyone to see that our heritage in wildlife is not squandered and that the covers are well stocked when the boys come home and have time to hunt and fish.

Recently Dr. Edgar V. Allen, chief of the medicine division of the Mayo Clinic, prescribed "For the business man's longevity . . . . more fishing and hunting." For the mental health of this country, soldier and civilian alike, fish and game must be protected.

SAVE THE FORESTS

(Farmerville Gazette)

The Division of Forestry urges everyone to be considerate in preserving our timber resource. Interested cooperation shows an intelligent appreciation of the fact that everyone loses when timber burns and that in the end the public may be the chief loser.

The nation, facing a grave crisis, is today giving its wealth, its manpower and its industries to national defense. It is an all-out effort to preserve our freedom. And it must succeed. In a very substantial measure this defense of our freedom depends upon a continuing supply of natural resources, among which those of the forest are of vital importance.

Forest fire is a destroyer of these resources which must be vigorously dealt with. Not only does fire cause a staggering loss but it can disrupt whole communities, industries and transportation systems. To fight fire in the forest and in the open country requires the expenditures of millions of dollars annually. Successful fire suppression calls for organized agencies—federal, state and private. Prevention is the job of the general public—our job.

Our line of action is simply stated. We know that most fires—thousands of them in fact—are due to acts of carelessness on the part of uninformed and thoughtless citizens. We must rally these citizens to the vital and immediate need of forest fire prevention. The public will to prevent fires must be vitalized to swift and forcefull action. All of us must unite in a comprehensive campaign of public education.

The vast extent of its forests has helped to make the United States the great industrial nation it is today, but unregulated exploitation and forest fires have made serious inroads upon this source of prosperity. As forests will always be necessary to both the economic and social life of this country, they can never cease to play an important part in the American picture, because no other agent can replace them as sources of industrial wealth, conservators of water and soil, as recreation grounds, and the home of wildlife and game. It will, therefore, always be essential that the people of the United States maintain a forest growth sufficient to meet the demands of the various forms of forest use. To do this our remaining forests must be used wisely; we must have sufficient fire control backed by public cooperation. Only in this way may we expect to preserve for all time an adequate portion of that forest wealth which has had and is having such a vital influence in shaping the destiny of the nation.

CONSERVING OUR WILDLIFE

(Winnsboro Franklin Sun)

We've never before had the good fortune to be among a people who are more "sports-minded" than the citizenship of Franklin parish. And we've never observed, on the whole, sportsmen anywhere else who are more genuninely interested in, and doing something about, wildlife conservation.

Our conclusion is that they have become thoroughly aroused to the necessity of a well organized and efficient conservation program, and that they fully realize the value of a sound education program on conservation.

The success of any conservation program—here in Franklin parish or elsewhere—depends on just such type of cooperation from the people who are truly interested in conservation. Toward furthering this cooperation, the Franklin Parish Wildlife association, which was organized several months ago, has made a wonderful start. It can contribute much more if its members continue as interested and as active as they now are.

FEDERAL GRANT TO PROTECT FORESTS

The largest federal grant under present laws for forest fire control in Louisiana, $64,278, has been allotted by the government, it was announced at Atlanta by Joseph C. Kircher, regional forester of the United States Forest service.

Division of Forestry Carries On Extensive Education Program

by

J. H. Kitchens, Jr.

You'll hear more about Louisiana's forestry program! The chances are, you will also be called on to help make this program a success.

To stimulate a forest-conscious attitude among the citizenship of Louisiana is the aim of the education and information program now being carried on by the Division of Forestry. For the first time in the history of the state, an organized, large scale effort is being made to let the people know more about their forests and the importance of public cooperation in forest protection and management.

Every section of the state and all groups will be reached, for the problem is a state-wide one. Located at strategic points throughout the state are the foresters and supervisory personnel of the Division who are constantly using every available means to develop a larger degree of interest and cooperation from the public.

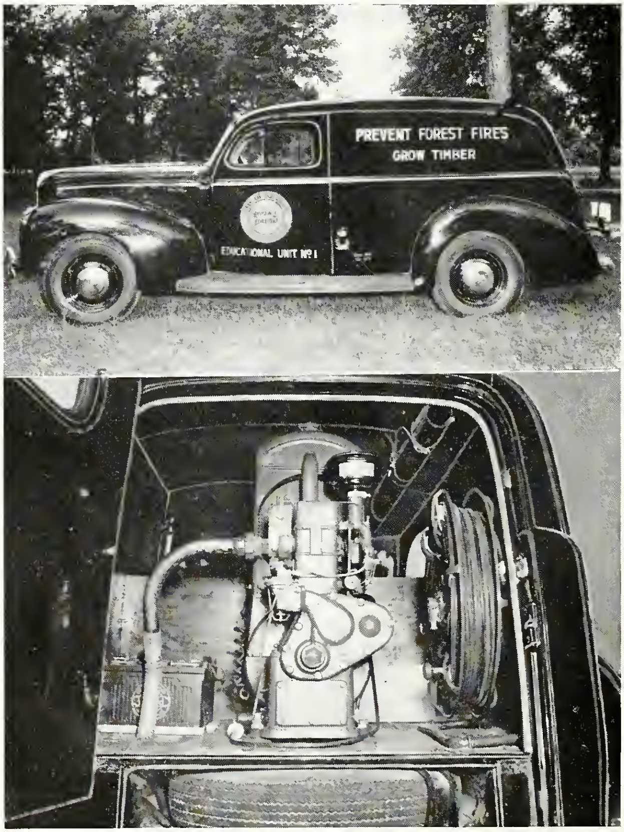
The program begins in the schools and extends into the most remote rural areas. In towns, service groups and civic organizations are being called on to sponsor projects which will point out the advantages of our forests and the need for their protection. The newspapers and radio stations have very readily volunteered their services for this worthwhile public service.

The Division is now operating two of the most modern, completely equipped mobile motion picture units to be found anywhere in the country. Trained, graduate foresters operate these units and their services are constantly in demand in the schools, towns and rural areas. Sedan delivery-type trucks house and move the equipment of the education units. Gasoline operated, electric generators are installed in the rear of the trucks to furnish electric current in outlying areas. Sound pictures on forestry and related subjects are shown on a nightly basis to audiences ranging from twenty-five to three hundred persons. Short talks and musical programs are given before each movie.

Besides the movie programs, the foresters are also working with the schools in other ways. During the coming winter months, a state-wide essay contest is to be run in the schools. Prizes totaling nearly three hundred dollars will be given to the writers of the winning papers. Literature is distributed to the schools to help in their study of forestry subjects and lectures are given by the personnel of the Division.

Extensive work has been done with Boy Scout and 4-H Club organizations, too. During the past summer months, the two motion picture units have been kept busy meeting with these groups in their summer camps. The boys have been taught forestry and forest protection. These activities have resulted in the formation of Boy Scout and 4-H Club forests in many locations. Some of the Boy Scout troops have organized Forest Fire Patrols to join with the Division fire fight-

[Turn to page 48]



■ One of the two mobile motion picture units now being operated by the Louisiana Division of Forestry. Rear view shows location of electric generator, electric cable, screen, and other equipment.

State Nursery Growing Eight Million Seedlings, Trees Available to Landowners at Cost

by
J. E. Mixon

One of the most interesting of state projects, o pine seedling nursery, is operated by the Division of Forestry, Louisiana Department of Conservation, in the State Forest located near Woodworth. In this nursery will be found millions of pine seedlings being grown to transplant in old fields, burned-over lands and waste areas. Landowners may secure these trees at nominal cost, for reforestation. No seedlings can be furnished for ornamental plantings.

In 1924 the Division of Forestry put into operation the first State owned forest tree nursery in the South. Only a few thousand seedlings were grown that year. This coming winter, 8,000,000 one-year-old trees will be planted throughout the state. This will bring the total produced at this nursery and transplanted to denuded lands to around 25,000,000 seedlings, largely pine.

Pine cones are gathered to supply the pine seed. The cones are fully mature in September or October, after two seasons on the tree, and are collected before they open and scatter their seed. The cones are hauled to the nursery and stored in ventilated sheds. After a few days, the cones begin to open and nearly all the seed fall out. Because all the seed do not escape when the cones open, they must be tumbled in a cone rattler and the seed shaken out. Nature provides the pine seed with a wing These wings must be removed and along with other trash separated from the seed.

The nursery area is made up into clean and level seed beds. The seed are sown in drills, rolled slightly into the ground and covered with a pine straw mulch.

A bird guard is necessary from dawn to dark, the first few weeks, to keep the birds from eating the seed and destroying the seedling crop. Regular weedings are necessary, especially when the seedlings are young and tender. Insects and disease must be guarded against and the young plants are sprayed and dusted whenever necessary.

Seedlings are 8 to 14 inches tall after a growing season in the nursery When they harden and become dormant, they are ready for shipping. The trees are

■ State Nursery, Louisiana Division of Forestry, located at Woodworth, La.

■ Seven year old plantation of slash pine on State Forest near Woodworth Louisiana.

dug, culled, counted and packed carefully in bundles with wet moss on the roots. Payment for the trees must be made in advance. The price is $2.00 per thousand, FOB Woodworth, Louisiana.

The Division of Forestry maintains District offices at Hammond, Oberlin, Winnfield, and Ringgold. Landowners in Louisiana may secure the services of technically trained foresters from either of these offices for planting information.

Labor and supervision must be provided by the landowner on the planting job. Two men, or a man and a boy, can usually set out over 1,000 plants in a day. If shallow furrows are scratched beforehand, the planting job is easier and faster.

Cultivation and fertilizer are not needed on the plantation, but protection from fire must be provided. Plowed firebreaks 16 feet wide around the plantation will give good fire protection. Cattle cause only slight damage to young pine trees, but goats ond sheep will bite off the tops of young seedlings.

Planting eight by eight feet requires 680 trees per acre and the cost is around $4.00 per acre with labor and incidentals included. By subtracting costs from income an average profit of $1.50 per acre per year can be expected from plantations. Louisiana is particularly favored with rapid growth of forest trees on unburned land. Timber grows in volume and value regardless of world conditions.

Division of Forestry Carries on Extensive Educational Program

[Continued from page 46]

ing organization in combatting the forest fire problem.

The radio stations and newspapers of Louisiana have readily recognized that the new forestry program, as is now being carried out, will be a boost to the state's industrial expansion. Always ready and willing to help in any public service of this type, these agencis have given their fullest cooperation in the presentation of the Division's program.

No stone will be left unturned in this effort to let the people of Louisiana know about THEIR forestry program. A greater public cooperation will result in a smaller fire damage each year. Timber lands will be restored to their fullest producing capacity. Game and wildlife will benefit. The effects of this effort will be far-reaching. Will you help? It is YOUR program.

Beauty and the Beast

[Continued from page 30]

Kenney," after many dock tests and maneuvering tests, was now ready to sail forth on its errand of destruction. Although it is an impressive vessel, its crew dare not call it a "ship." Whether it was the navy or the army who ordered the crew to speak of the "Kenney" as the "plant" is not in the record, but to non-seafaring men anything that floats is either a boat or a ship.

The good ship Kenney is an all-steel, all-welded vessel of the barge type. She measures 80 feet in lngth, 24 feet in width and is 4 feet deep, and she is of the conventional twin-screw, tunnel-stern pattern. Her hull is divided into five water-tight compartments by transverse bulkheads. The two huge fuel tanks (each containing 1,000 gallons) are located in the third compartment, but the propelling mechanism is below deck immediately aft in the next compartment. The remaining compartments are arranged for storage of material and spare parts.

The crew consists of a master, an engineer and three deck hands, and in addition thereto are the men who operate the destroying devices, which include an endless-chain conveyor, a hopper, the crushing rollers and the discharge trough. Each piece of machinery is driven by its individual electric motor, and power for these motors is developed by two diesel-electric generating units. The lower end of the conveyor, being submerged, is driven under the floating hyacinths and rakes them upward along the conveyor trough to its point of deposit over the hopper. Falling into the hopper, the vegetation is fed by gravity between two corrugated crushing rollers. The crushed mass is then dropped into the discharge trough beneath. from which it is washed overboard.

The heavier sections of the plant, with their supporting air cells destroyed, immediately sink to the bottom of the stream, while the leaves and lighter parts remain afloat for several hours, and then gradually sink. Because of the minute size of the seed, they are not destroyed by this crushing process; however, tests show that the amount of regrowth from vegetation that passed through the crushers is small.

The victory is not complete, which is as it should be, for the people who live in the maze of bayous, bays and lagoons of Louisiana, as well as the tourists who visit us do not want the water hyacinth exterminated. We are grateful to Congress and to the engineers, but we are also grateful to the man who brought the innocent lily to the New Orleans Cotton Exposition in 1884. We would not dispense with that carpet of green that spreads over the non-navigable streams and the low swamps, making such a lovely background for their myriad lavendar blossoms that sway to and frn at the whims of the lazy breezes that come from the Mexican Gulf.

SMOKED CRABMEAT—ANOTHER OPPORTUNITY

(From the Houma Daily Courier)

A can of smoked crabmeat, packed in oil, prepared by a Pacific coast canning plant was recently given to the editor of this newspaper for consumption and comment.

Mr. Eugene Dumez, secretary of the Houma-Terrebonne Commerce, who received three of the cans, has written to the canner for information on the method of processing. The product seems to be new—at least the method of canning is new—and he is anxious to see what the response of consumers is over the country where the product is being sold.

It was the experience of those who consumed the crabmeat that the product, while acceptible in taste and attractive in appearance, probably could not compare to a similar product prepared from crabs from our coastal waters. Mr. Dumez asserted that crabs caught in this part of the United States are generally smaller, have more tender meat, and usually have a better flavor.

The product, nevertheless, is interesting to local packers, because it shows that there yet remains avenues of exploitation of our fisheries resources as yet unexplored by local packers. Shipment of crabmeat is now being made from various parts of the state for the most part, however, in refrigerated shipments. Canning of crabmeat has never been a major industry in this section, but there seems to be no reason that it might not become more general.

As far as the supply is concerned, there is every evidence that the supply of crabs in local waters is tremendous, and that if the cost factors of preparation and canning are such to permit competition wtih other products or with canned crabmeat from other areas, that here again Terrebonne parish, and for that matter, the whole of Southern Louisiana is again presented with an opportunity.

STATE IS SECOND IN SALT OUTPUT

Washington—Louisiana ranked second to New York as America's largest rock salt producer during 1939, it was disclosed by the Consul bureau Tuesday. Next in line were Kansas, Michigan and Texas. The five states produced 99 percent of the nation's output, of 2,047,000 short tons. The total mine values was $6,986,000.

Organizations Constituting the Louisiana Wildlife Federation, Inc.

Allen Parish Sportsmen' Club—President, A. D. Elliott, Oakdale; Vice-President, Barney Dowies, Elizabeth; Secty-Treas., Leon Hooker, Oakdale.

Amite Unit, Tangipahoa Parish Sportsmen's League—President, K. McLaughlin, Amite; Vice-President, J. J. Wallace, Amite; Secretary, F. E. Patennotte, Amite.

Ascension Parish Unit, Louisiana Sportsmen's League—President, Capt. O. J. Daigle, Donaldsonville; Vice-President, J. Clarence LeBlanc, Donaldsonville; Secretary, Dr. Spencer B. Lake, Donaldsonville; Treasurer, Dr. Sidney Vega, Donaldsonville.

Assumption Parish Sportsmen's Club—President, Bronier Thibault, Napoleonville; Vice-President, J. W. Gilbert, Napoleonville; Secty-Treas., J. A. Lanier, Napoleonville.

Baton Rouge Sportsmen's League—President, M. J. Acosta, Baton Rouge; Vice-President, Russell Efferson, Baton Rouge; Secty-Treas., J. J. Besson, Baton Rouge.

Bossier Parish Wildlife Association—President, Tom Caldwell, Benton; Vice-President, Hudson Johnston, Benton; Secretary, A. J. Broussard, Bossier City; Treasurer, C. W. Riddle, Elm Grove.

Breaux Bridge Sportsmen's League—President, W. R. Angelle, Breaux Bridge; Vice-President, Leo M. Delahoussaye, Breaux Bridge; Secty-Treas., Rodney Broussard, Breaux Bridge.

Catahoula Game Protective Club—President, W. C. Beard, Jonesville; Vice-President, Chas. L. Wurster, Sr., Jonesville; Secty-Treas., H. G. Taliaferro, Jonesville.

Claiborne Parish Fish and Game Association—President, Dr. W. J. Rivenback, Haynesville; Vice-President—First, Dr. A. T. Bevil, Haynesville; Vice-President-Second, J. R. Price, Homer; Secty-Treas., J. N. Brown, Homer.

Concordia Parish Hunting and Fishing Club—President, Hugh A. Bateman, Ferriday; Vice-President, J. D. King, Ferriday; Secty-Treas., Marcus Schuchs, Ferriday.

Crowley Sportsmen's Club—President, W. J. Cleveland, Crowley; Vice-President, C. O. Morrow, Crowley; Secty-Treas. E. D. Peckham, Crowley.

DeSoto Parish Wildlife Association—President, Goodwyn H. Harris, Jr., Mansfield; Vice-President, E. T. Davis, Mansfield; Secty-Treas. R. P. Madden, Mansfield.

East Carroll Fish and Game Association—President, Mertie Levy, Lake Providence; Vice-President, Charlie Lyon, Lake Providence; Secty-Treas., Dr. F. A. Williams, Lake Providence.

East Feliciana Sportsmen's League—President, John P. Bornman, Wilson; Vice-President, D. C. Johnston, Jr., Jackson; Secretary, A. L. Irwin, Clinton.

Eunice Wild Life League—President, O. A. LaHaye, Eunice; Vice-President, Jake Fontenot, Eunice; Secty-Treas., L. A. Durand, Eunice.

Evangeline Wildlife Association—President, Edgar A. Buller, Ville Platte; Vice-President, H. P. Dupre, Pine Prairie; Secty-Treas., O. M. Dardeau, Ville Platte.

Franklin Parish Wildlife Federation—President, Jim Carroll, Winnsboro; Vice-President, Harry Gilbert, Winnsboro; Secty-Treas., Edward Short, Winnsboro.

Franklin Sportsmen's League—Chairman, Dr. W. R. McGehee, Franklinton.

Iberia Sportsmen's League—President, Jos. A. Bourz, New Iberia; Vice-President, Dr. E. N. Landry, New Iberia; Secty-Treas., Jules B. Schwing, New Iberia.

Iberville Sportsmen's League—President, R. L. Hubert, Plaquemine; Vice-President, Frank Postell, Plaquemine; Secty-Treas., M. E. Davidson, Plaquemine.

Jackson Parish Conservation Club—President, Neil Thomas, Jonesboro; Treasurer, A. N. West, Hodge.

Jefferson Davis Parish Rod and Gun Club—President, Paul Slone, Jennings; Vice-President, H. E. McLemore, Jennings; Secty-Treas., Carl Barnette, Jennings.

Lafayette Conservation Club—President, Dr. L. O. Clark, Lafayette; Vice-President, J. E. Krauss, Lafayette; Secty-Treas., Hardy Durand, Lafayette.

Lafourche Sportsman Club—President, Alvin Badeaux, Thibodaux; Vice-President, Gaston L. Braud, Thibodaux; Secty-Treas., A. H. Hoffman, Thibodaux.

LaSalle Wildlife Club—President, Dr. B. W. Thompson, Olla; Vice-President, W. G. Coleman, Jena; Secty-Treas., J. D. Russell, Jr., Jena.

Lincoln Parish Conservation League—President, H. O. Warren, Ruston; Secty-Treas., H. B. Aycock, Ruston.

Madison Parish Fish and Game Conservation Association—President, Henry C. Sevier, Tallulah; Vice-President, W. B. Williams, Tallulah; Secty-Treas., D. L. Moberley, Tallulah; Asst. Secty-Treas., Maxwell Yerger, Tallulah.

Mamou Sportsmen's League—President, T. A. Melancon, Mamou; Vice-President, A. B. Guillory, Mamou; Secty-Treas., Daniel LaHaye, Mamou.

Morehouse Wildlife Association—President, L. C. Spier, Bastrop; Vice-President, Will Dunn, Bastrop; Secretary, John J. Collins, Bastrop; Treasurer, W. L. Mattison, Bastrop.

Natchitoches Wildlife Federation—President, W. Peyton Cunningham, Natchitoches; Vice-President, A. M. Bell, Natchitoches; Secty-Treas., Steve Harmon, Natchitoches.

New Orleans Sportsmen's League—President, Fred McCaleb, New Orleans; Vice-President, John Douglass, New Orleans; Secretary, J. A. Eason, Jr., New Orleans; Treasurer, James O. Grout, New Orleans.

Opelousas Wildlife Association—President, A. K. Smith, Jr., Opelousas; Vice-President, Vincent Moseley, Opelousas; Secty-Treas., Simon Stelly, Opelousas.

Ouachita Sportsmen's League—President, John S. Fox, Monroe; Vice-President, R. L. Prophit; Monroe; Secretary, McVea Oliver, Monroe; Treasurer, F. L. Martin, Monroe.

Rapides Wildlife Federation—President, Judge Gus Voltz, Alexandria; Vice-Pres. and Secty., J. M. Shevnin, Alexandria; Treasurer, Dr. W. Luther Stewart, Alexandria.

Richland Game and Fish Club—President, John C. Morris, Rayville; Vice-President, W. W. Kelly, Rayville; Secty-Treas., W. H. Farmer, Delhi.

St. Charles Wildlife Federation—President, Lloyd Landry, Luling; Vice-President, George Bleakley, Norco; Secty-Treas., W. J. Tinny, Boutte.

St. Martinville Conservation Club—President, D. A. Fournet, St. Martinville; Vice-President, James J. Bonin, St. Martinville; Secty-Treas., L. H. Boulet, St. Martinville.

St. Tammany Sportsmen's League—President, LeRoy Dunn, Covington; Vice-President, Walter Jones, Covington; Secretary, W. T. Kentzel, Covington; Treasurer, L. J. Arthur, Covington.

Slidell Wildlife Club—President, G. H. Brock, Slidell; Vice-President, P. A. Tabary, Slidell; Secty-Treas. J. R. Lee, Slidell.

Lake Charles Wildlife Association—President, Cenas Gaines, Lake Charles; Vice-President, Groves Castle, Lake Charles; Secretary, John LaRavia, Lake Charles.

Sulphur Wildlife Federation—President, Dr. W. A. K. Seale, Sulphur; Secretary, E. J. Busch, Sulphur.

Sunset Wildlife Association—President, Percy Devalcourt, Sunset; Vice-President, Dr. S. A. Oliver, Sunset; Secty-Treas., J. J. Arceneaux, Sunset.

Tensas Parish Sportsmen's League—President, E. D. Coleman, St. Joseph; Secty-Treas., A. G. Bondurant, St. Joseph.

Terrebonne Sportsmen's League—President, Otis Bourg, Houma; Vice-President, Louis Routier, Houma; Secty-Treas., Irving Carlos, Houma.

Union Parish Conservation Club—President, A. C. Dykes, Farmerville; Secty-Treas., Rudolph Farrar, Farmerville.

Vacherie Sportsmen's League—President, H. M. Sevin, Vacherie; Vice-President, Emile Darenbourg, Vacherie; Secty-Treas., F. G. Prat, Jr., Vacherie.

Vermilion Parish Sportsmen's Club—President, Walter Gordy, Jr., Abbeville; Secty-Treas., V. C. Jennaro, Abbeville.

Washington Conservation League—President, Dr. Ernest Angelo, Bogalusa; Vice-President, L. P. Lacombe, Bogalusa; Secty-Treas., E. J. Whelan, Bogalusa.

Webster Parish Wildlife Association—President, J. E. Long, Minden; Vice-President, Jasper Goodwill, Minden; Secty-Treas., John T. Campbell, Minden.

West Carroll Wildlife Club—President, E. W. McBride, Oak Grove; Vice-President, C. N. Travis, Oak Grove; Secty-Treas., Sam H. Campbell, Oak Grove.

West DeSoto Parish Wildlife Protective Association—President, J. W. Caraway, Longansport; Vice-President, Ed. Spann, Logansport; Secty-Treas., Jas. A. Rougeou, Logansport.

Westside Chapter of Jefferson—President, J. H. Fledderman, Algiers; Vice-President, H. G. Dieterich, Algiers; Secty-Treas., Daniel Champagne, Algiers.

White Castle Wildlife Club—President, Edward Supple, Bayou Goula; First Vice-President, Paul Kessler, White Castle; Second Vice-President, Richard False, White Castle; Secretary, A. J. Hebert, White Castle; Treasurer, Webster Champagne, White Castle.

Caddo Wildlife Federation—President, Charles Horne, Jr., Shreveport; Vice-President, Alec Cloutier, Shreveport; Secretary, Percy Browne, Shreveport.

Winn Parish Wildlife Club—President, S. E. Jenkins, Winnfield; Vice-President, J. L. Holmes, Winnfield; Secty-Treas., H. R. Heard, Winnfield.

Livingston Parish Sportsmen's League—President, R. S. Cooper, Denham Springs.

Ponchatoula Rod and Reel Club—Secretary-Treas., P. E. Thibodaux, Ponchatoula.

Sabine Parish Wildlife Association—President, Judge William H. Ponder, Many.

Cameron Wildlife Protective Association—President, Mark Richard, Vice-President, Ray B. Peveto; Secretary, Whitney Vincent.

Grant Parish Wildlife Association—Chairman, Quincy A. Hargis, Jr., Colfax.

Caldwell Parish Wildlife Association—President, Rev. Paul Jones, Clarks; Vice-President, F. C. Kruse, Columbia; Secretary-Treas., C. D. Farrow, Clarks.

AN ONION A DAY KEEPS THIRST AWAY

Hints to Hikers, handed out by park rangers who know their onions, include the tip that to carry a raw onion in the mouth is a good way to quench thirst. Others caution, don't look lower than your feet in crossing foot bridges. When negotiating rough trails, eat little but often. Don't overexert; halt and rest, but not longer than 5 minutes at a time—this to avoid colds and stiff muscles. In steep descents, always go down sidewise, so as to plant the foot more effectively. When mountain climbing, proceed slowly and steadily. Before starting, rub your feet with soap, vaseline, or melted tallow. To harden your feet, soak in a solution of alcohol and salt. Don't wear cotton socks; wear soft, thick woolens.

WARNING TO GUN OWNERS

As you know, the dangerous practice of using progressive burning powder loads in Damascus-barreled guns has occasioned considerable concern to the members of the sporting arms industry in this country. Writers on guns and ammunition have performed a valuable service in bringing this matter to the attention of their readers.

Because of a persisting tendency on the part of owners of twist-barrelled guns to ignore past warnings, the Sporting Arms and Ammunition Manufacturers' Institute feels that the time is ripe for a new warning, emphasizing the fact that there are NO modern smokeless loads that are safe for use in guns having Damascus or other twist-barrels. Accordingly, the Institute's Technical Committee has authorized the issuance of the following, directed to owners of Damascus-barreled guns:

"Never use smokeless powder loads—even LIGHT smokeless powder loads—in guns having Damascus or other twist barrels! To ignore this warning is to court severe personal injury through possible gun barrel rupture.

"Some sportsmen still think twist barrels will handle modern loads safely as long as the extra heavy 'long range' loads are avoided. This is a fallacy. Twist barrels were designed back in the days of black powder, which is far less powerful and develops a much lower pressure than any of our modern gunpowders. Even the so-called 'light' modern loads are unsafe in twist barrels.

"Many of these barrels are the handiwork of highly skilled craftsmen. But regardless of the quality of workmanship employed, the method of combining low carbon steel with iron, and the weakening heating process to which they have been subjected during manufacture, render them unsafe for the high pressures developed by modern loads, for which they emphatically were not designed. American manufacturers have not made them since the advent of modern progressive burning or 'smokeless' powder.

"If you own a Damascus or other twist-barrel gun, don't take chances. Retire it now, and avoid the possibility of accident and injury."

HOOKS

When buying a fish hook, very few anglers really think of the qualifications of a good hook. Here are a few:

1. It should hook easily.
2. It should be light.
3. It should be strong.
4. It should not kill your fish.

LOUISIANA FISHING SEASON

1941-1942

LICENSE PROVISIONS

New Provisions Became Effective January 1, 1940

ANGLING LICENSE, RESIDENT, per annum	$1.00
Required of all persons between the ages of 15 and 60 years, fishing with rod and reel.	
ANGLING LICENSE, NON-RESIDENT, per annum	$2.00
Required of all non-resident anglers fishing for fresh and salt water game fish, irrespective of tackle or bait used.	
FRESH WATER COMMERCIAL FISHERMEN LICENSE	$5.00
This license requirement applies to all commercial fishermen using nets, whether owners or employees.	
HOOP NETS—up to 15 nets	$5.00
($5 additional for every additional 15 nets or fraction thereof)	
TROT LINES	$5.00
SEINES—TRAMMEL—GILL NETS:	
Netting not exceeding 150 feet	$5.00
For every additional 100 feet	$5.00

FRESH WATER GAME FISH

Kinds	Size Limits	Creel Limits
BLACK BASS ("Green Trout")	10 inches or more	20 daily
YELLOW BASS ("Striped Bass")	7 inches or more	25 daily
WHITE BASS ("Bar Fish")	7 inches or more	25 daily
CRAPPIE ("White Perch", "Speckled Perch", "Sac-A-Lait")	7 inches or more	25 daily
SUNFISH ("Perch", "Bream", "Goggle-eye", "Blue Gill", etc.)	5 inches or more	100 daily

METHODS OF TAKING: Can be taken only by means of rod, hook and line, trolling line, hand-line, bait casting apparatus, or fly casting apparatus.

SALE PROHIBITED: No fresh water game fish may be sold in the state, whether caught within or without the State of Louisiana.

Bait Seines 20 feet or less, dip nets and minnow traps are permitted in fresh water when used for the sole and only purpose of taking minnows, shrimp and other permitted baits. Any game or commercial fish taken must be returned to the water without injury.

FRESH WATER COMMERCIAL FISH

Kinds	Size Limits
CATFISH	14 inches or more
BUFFALOFISH	16 inches or more
GASPERGOU (Fresh Water Drum)	No size limit
CARP	No size limit
PADDLEFISH (Spoonbill Cat)	15 pounds or more
BULL-FROGS	4½ inches or more
MUSSEL SHELLS	2 inches or more

Persons fishing exclusively for home consumption, but not for sale, are permitted to take or have in possession in one day a TOTAL of twenty-five undersized specimens of catfish and buffalofish. Commercial fishermen must return all undersized fish to the waters without avoidable injury.

SIZE OF MESH: Seines or other netting permitted with a mesh not less than 3 inches square or 6 inches stretched, as found in use, measuring the full bar stretched from the near side of one knot to the far side of the other. Bait seines 20 feet or less excepted when used solely for taking bait.

WILDLIFE AND FISHERIES DIVISION

LOUISIANA CONSERVATION DEPARTMENT

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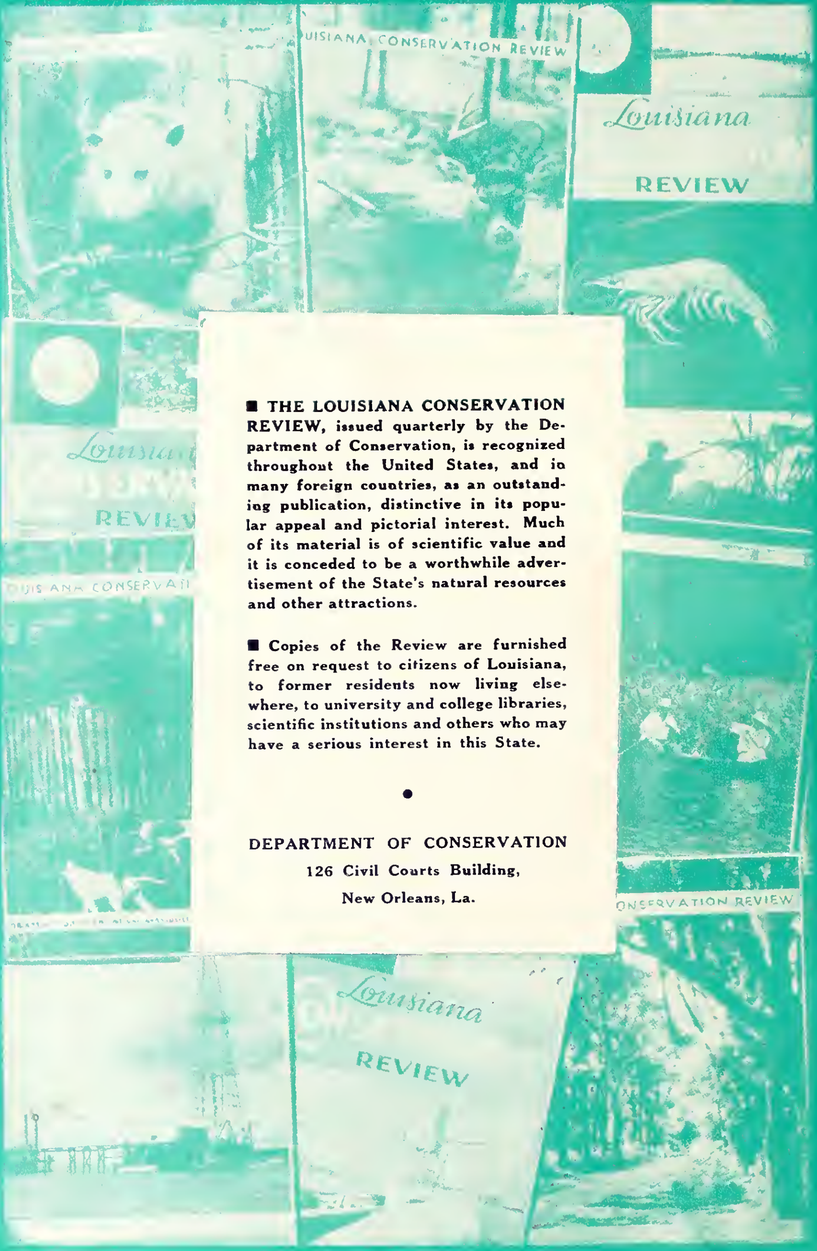

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■ Copies of the Review are furnished free on request to citizens of Louisiana, to former residents now living elsewhere, to university and college libraries, scientific institutions and others who may have a serious interest in this State.

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LOUISIANA ROOM

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